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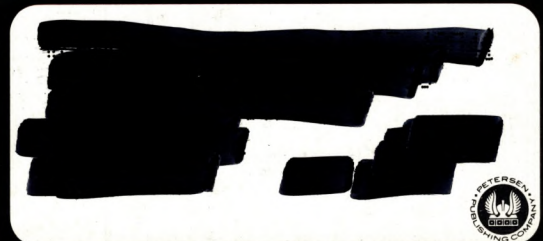
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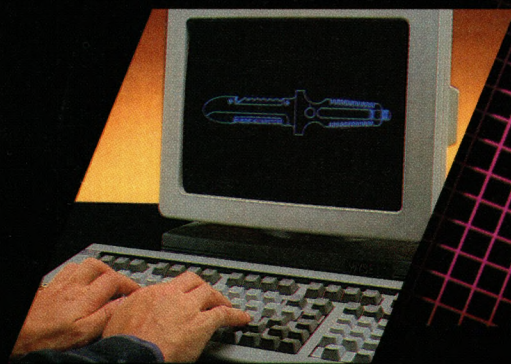
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Blackie Collins checks specifications on early production samples.

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skin diver

Volume Thirty-seven Number One



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COVER

Diving gear has come a long way. Now attractive, high visibility colors allow each diver to express his/her individuality. Model Jilda Trollo's ensemble is a perfect example. For more see page 14. Photo/David Brooks.



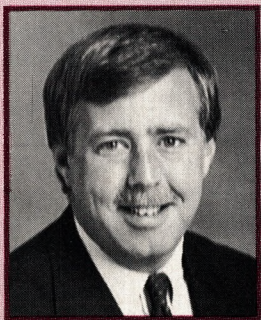
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SDM Editorial

BY BILL GLEASON

DIVING'S TEN COMMANDMENTS

To usher in a new year of diving fun and safety, SDM has prepared the guidelines below. Following these "commandments" will lead to a safer, more rewarding and fun year for all divers:

1. *Thou shalt always dive with a buddy.* For novice and inexperienced divers, this rule is absolutely inflexible. As your experience level grows—perhaps when you have 75-100 dives in warm water, current free situations—you may interpret the buddy concept a little looser. Two photographers, for example, can be 50-100 feet apart, but should always be aware of both of their times and depths and return to the boat or beach together. At their own risk, very experienced divers may elect to dive alone, but a topside "buddy"—such as a prepared rescue diver or divemaster—should be aware of their dive plans, profiles and entry and exit times. Although you may interpret this rule according to your experience level, you must always have a "buddy" of some sort.

2. *Thou shalt slow down when ascending and take a minute (or more) safety stop at ten feet.* Strong evidence is beginning to emerge that ascending too rapidly is the culprit in many cases of decompression sickness. Please slow down—from 60 feet on up, and particularly from 30 feet to the surface.

3. *Thou shalt always follow the divemaster's advice.* Divemasters are on boats to give expert, experienced advice about conditions, depths and safety procedures. Please follow this advice. Guides are in the water either leading the dive or watching out for your safety. If you intend to stray from the group or follow a different profile, discuss it with them before the dive. If you're an experienced diver, make a dive or two with the guide and let him/her know you're experienced. You'd be surprised at how cooperative these folks are after they've seen you dive and not just seen your C-card.

4. *Thou shalt always be courteous to other divers!* This is the hardest commandment of all to follow—particularly if dive "nerds" are around; pushing folks out of the way so they can be first in the

water or leaving their equipment strewn all over the boat. Sometimes a little courteous discussion with them or the divemaster is required. If that doesn't work, just don't dive with them. We're all diving to have fun and new experiences. Courtesy is part of that and no one needs to put up with rude divers!

5. *Thou shalt not destroy the reef.* Whether it's fragile coral or the granite reefs of northern climates, take extra care not to destroy them. Watch your buoyancy and watch those fins. And, remember that wearing gloves is not a license to grab anything in sight. The best divers have such good buoyancy control they don't need any protection from the marine environment except for warmth. They don't ever need to touch or grope anything, except by their choice. Work toward that goal yourself.

6. *Thou shalt not steal from the sea—*not coral, not illegal artifacts, not illegal fish and lobster. When you do, not only do you harm the ecology of the oceans, but you rob others of wonderful diving experiences. If you're out to shoot fish and collect lobsters, which is perfectly OK, follow the rules for that particular area to

the letter. That means leaving shorts underwater where they belong, not measured on a boat and casually tossed back. A short lobster removed from its habitat has less than a 50 percent survival rate! An already speared fish that's too small has no chance at all. And, where reefs and wrecks are protected, honor all the local rules.

7. *Thou shalt not take drugs or alcohol before diving, period.*

8. *Thou shalt not infringe on thy neighbor's space on the dive boat.* Regardless of the amount of gear and/or cameras you bring along, stow it neatly on the boat and return it to that space when the dive is ended. Not only will your fellow divers appreciate this, but the chance that another diver will accidentally "trash" your equipment will be minimized.

9. *Thou shalt not intrude on thy neighbor's time with boring diving stories or slides.* Sure, one of the best aspects of diving is sharing it with others. But, give them a chance to share theirs, too. And, only a masochist wants to see two whole carousels of your slides! Keep your best stories and slide shows brief and employ the seldom used technique of listening. You'll have a better time. Better yet, share a real dive with a less experienced diver. Sure, it's not the most exciting thing for you do, but the other guy or gal will really enjoy and profit from it.

10. *Thou shalt be friendly, smile a lot and enjoy thyself.* It is impeccable diving etiquette to introduce yourself to others on the boat. It is OK to laugh about little mistakes we all make. It is all right to get caught smiling, even laughing. And, it is wonderful to know there are hundreds of thousands of other divers out there who feel this way, too.

Diving is great fun. Be serious about safety but have a good time. And, remember the best way to enjoy diving is to share it with someone who's never tried it. Help someone get enrolled in a class and be his/her buddy during the first 10-20 dives that it takes him or her to get comfortable in open water. About the only thing better than actually diving is sharing it with a friend. 



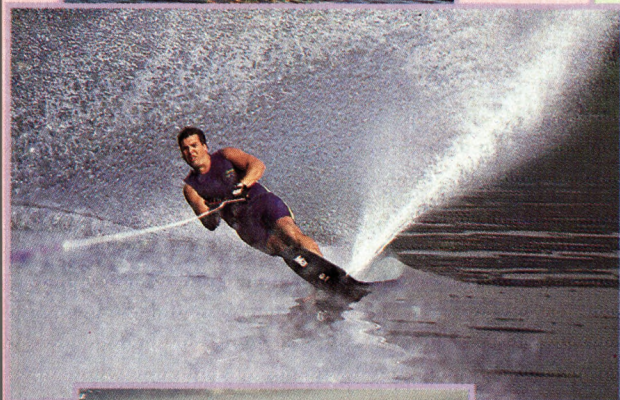
Thou shalt slow down when ascending ...

photo/Bonnie J. Cardone

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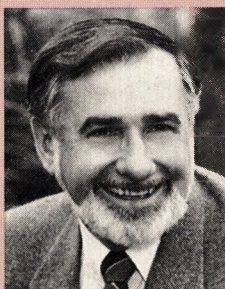
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SDM Editorial

BY PAUL J. TZIMOULIS

SHIPWRECKS LOST

Unjust, unpopular laws often precipitate criminal activity. They often backfire on the people who create them. A good example was Prohibition.

A minor U.S. political party known as the Prohibitionist lobby got together with congressional lawmakers and passed one of the worst laws ever perpetrated on the American public. The Prohibition Law banned the sale, transportation and drinking of alcoholic beverages. Did it stop drinking in the U.S.? Absolutely not, it just made the practice illegal.

Instead of doing something good, the Prohibitionists and lawmakers did something incredibly bad. Their well-intentioned law provided a fertile opportunity for the funding and organization of crime in America. They helped Al Capone and his friends make their first million bucks.

How could sincere and learned lawmakers make such an outrageous mistake? It is easy when a group of lawmakers miscalculate public reaction.

It has been 55 years since Congress repealed the Prohibition Law. You would think that we have all learned a lesson from this fiasco, but history has a way of repeating itself.

The Abandoned Shipwreck Law may, in a smaller way, turn out to be another Prohibition fiasco. Underwater archaeologists may very well lose the shipwrecks they are attempting to protect.

How is this possible? It's easy, when you have an unjust law that is unpopular with the vast majority of divers in the U.S.

It is important to point out that neither the U.S. government nor the underwater archaeologists know precisely where the wrecks are. That is why they are eager to have an all encompassing law that claims ownership of all wrecks within U.S. waters—including the Virgin Islands, Guam, Samoa and other territories.

Shipwrecks are found in one of two ways. They are discovered accidentally by lucky sport divers who bump into them while doing other things or they are discovered as the result of painstaking research and expensive searches by professional treasure hunters. Almost no wrecks are found by underwater archaeologists because they lack the budgets

for speculative searches.

If the finding of shipwrecks is dependent on sport divers and professional treasure hunters, who is going to find the wrecks for the government? Who is going to fund the searches and waste valuable time looking for U.S. government property? Does the government really expect wreck hunters to work for free and turn their finds over to bureaucrats?

Most sport divers perceive the Abandoned Shipwreck Act as being a terribly unjust law. These wrecks belong to the

cause a backlash that could lead to "criminal activity." While this magazine does not condone unlawful acts, we can pretty much figure out how it will happen.

The scenario will go something like this. A sport diver accidentally discovers an old shipwreck while on a scuba outing. The wreck is not reported to the authorities because they are perceived as enemies. Instead, rumors of the find circulate among divers.

Pretty soon the wreck finder is contacted by a diver who has a "friend" who might be able to help. Introductions are made and a deal is struck. The wreck is worked in secret—probably at night. It is a big ocean out there and the government is going to have a devil of a time patrolling and controlling all of it.

Treasure, historical artifacts and parts of the shipwrecks will be salvaged and stored away secretly. When the salvage is completed, everything will be smuggled out of the U.S. The shipwreck will be "rediscovered" in a foreign country where the shipwreck laws are more lenient. Eventually, the treasure and artifacts will be auctioned off in London, Amsterdam or some other European city. Who could prove the shipwreck was stolen from the U.S.? It would be impossible.

The sad thing about this projected scenario is that everyone loses. The American sport divers lose their personal rights to search, discover and dive the wrecks they have come to accept as their heritage. Treasure hunters lose their rights to earn a living doing what they love best. They will most probably move their activities to foreign countries. The underwater archaeologists may have won the legal right to the wrecks, but they may lose the actual wrecks to smugglers. And, the U.S. government will probably lose a lot of tax money that would have been paid by the treasure hunters.

As bad as this scenario appears, there is a worse one—diver harassment. This is one backlash aspect that could be chilling. It will not take long for word to get around about secret salvage and shipwreck smuggling. The U/W archaeologists will go wild with anger and frustra-

(Continued on Page 114)

YOU CAN HELP

For information on shipwreck legislation write:

**The Atlantic Alliance for Maritime Heritage Conservation
P.O. Box 27272
Central Station
Washington, DC 20038**

There are bills in both houses of our Congress. To protest HR 74 contact:

**Honorable Walter B. Jones
House Merchant Marine and Fisheries Committee
U.S. House of Representatives
Washington, D.C. 20510.**

To protest SB 858 contact:

**Honorable J. Bennett Johnston
Chairman
Senate Energy and Natural Resources Committee
United States Senate
Washington, D.C. 20510**

sea and those lucky divers who are able to find them. Americans have been salvaging shipwrecks for hundreds of years, since a time before the Constitution was ever written. Why should this heritage be taken away now? Is it because the government is getting greedy, or because the underwater archaeologists are jealous?

The Abandoned Shipwreck Act is likely to alienate most divers in the U.S. and



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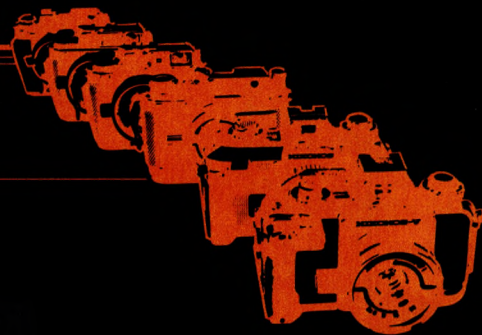
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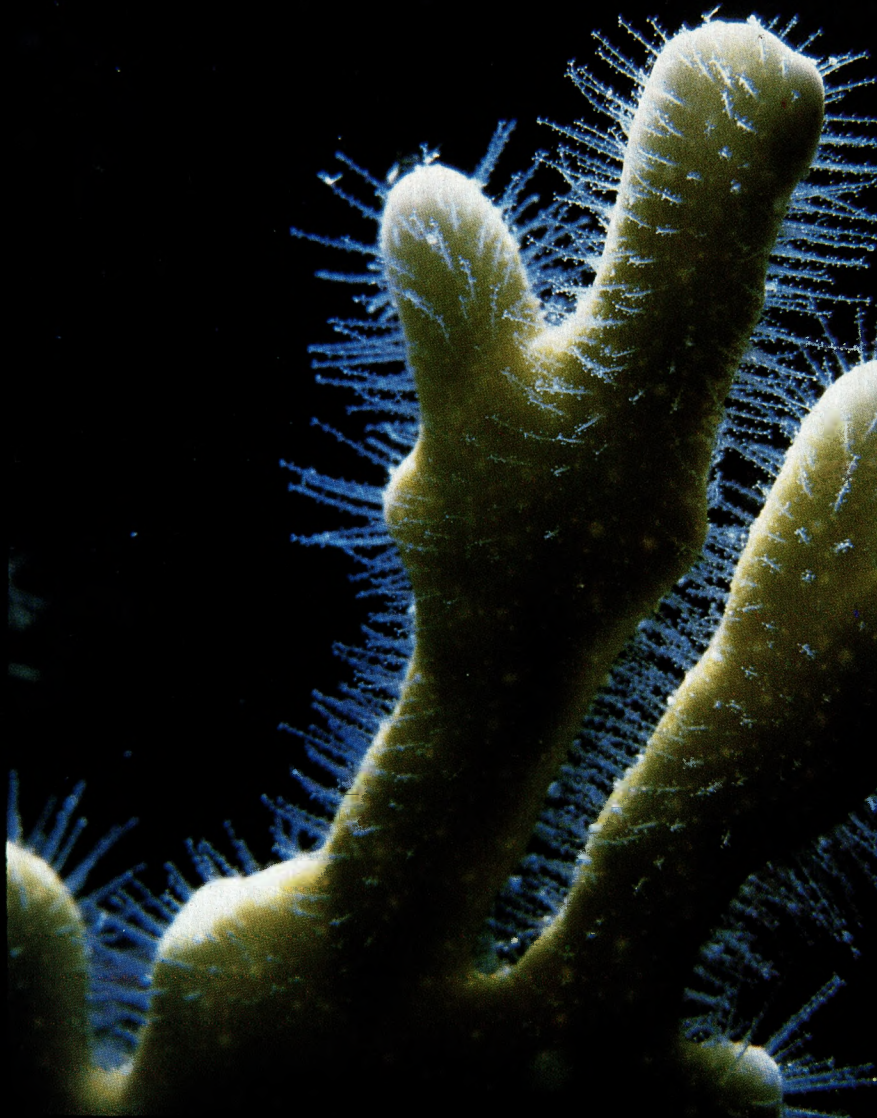
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LESSON XII **FLASH ANGLES/CAMERA ANGLES**

TEXT AND PHOTOGRAPHY BY GERI MURPHY



One of the keys of macro technique is selecting the right flash angle. The way your light strikes your subject and is reflected into the camera lens can alter the overall mood or effect of the picture. There are three basic flash angles: front, top (or side) and back lighting. There are many variations of these angles and the wide spectrum of choices allows you to choose just the right position for your strobe for the perfect picture. Above: Back lighting reveals the fine tentacles of this fire coral. Opposite page: Front lighting the yellowtail illuminates its open mouth. Side lighting emphasizes the moray eel's teeth. Side lighting adds a touch of sparkle to this cluster of clear tunicates.

The combination of flash and camera angles can produce a multitude of different moods and colors. This is the part of macro photography that is challenging to the creative ability of every diver.

FLASH ANGLE FOR PICTURE MOOD

One of the keys of macro technique—along with focus/framing and flash distance—is selecting the right flash angle. The way in which your light strikes your subject and is reflected into the camera lens can alter the overall mood or effect of the picture. Selecting or adjusting flash angle is the basic tool for creativity.

There are basically three flash angles in macro photography: 1) Front lighting, 2) Top (or side) lighting and 3) Back lighting. In addition to the three basic lighting positions, there are many variations of the angle or position used. This wide spectrum of choices allows you to choose just the right position for your strobe for the perfect picture.

In order to achieve this variety of flash angles it will be necessary to detach the strobe from the camera bracket and handhold it. Handheld flash may be a bit difficult in the beginning, but this skill is important to your growth and development as a creative macro photographer.

FRONT LIGHTING

Front lighting is the most natural and probably the most popular flash angle used in macro photography. It simulates a sunlit scene, as you might see it on land. For this angle, the flash is held just above the camera and directed upon the front portion of your picture.

Front lighting can be achieved by either a fixed, mounted strobe or one that is handheld. Begin with a mounted strobe as this ensures the precise distance from strobe head to wire frame.

In time, you will be sufficiently experienced in judging the correct strobe-to-subject distance. This is called eyeballing the distance.

TOP LIGHTING

Top lighting produces a more dramatic mood and works best with light colored subjects. For this, the strobe is held directly above the subject and pointed down. The flash distance is exactly the same as you would have with front light-

ing. Variations of top lighting would be to hold the strobe off to either the left or right instead of directly above.

A variation of top lighting is side lighting. The only problem with this position is that a shadow could be cast by the upright portion of the wire framer. Some photographers solve this problem by removing the upright wire on the side that is to be lighted. Another solution is to turn the camera so it is vertical and the open portion of the framer is pointed toward the flash.

BACK LIGHTING

Back lighting produces even more dramatic results and is especially effective with translucent subjects. It is also very effective in turbid conditions where backscatter is a problem. To achieve correct back lighting, the strobe is pointed at a theoretical point four inches behind the subject. The strobe is held much in the same manner as with top lighting, but shifted farther behind the subject.

One word of caution in back lighting: Never point the strobe directly toward the camera lens. Doing so will simply wipe out your picture with extreme overexposure. The trick to back lighting is to illuminate the back of your subject without revealing the source of the light.

CAMERA ANGLES

The fourth and final discipline of good macro technique is camera angle. This is another excellent tool for creative pictures. By changing the angle of your camera, you can greatly alter the color of your background and the perspective of the picture.

Changing the background color is achieved in one of the following ways:

White background—aim the camera down on a sandy bottom.

Black background—aim the camera toward open water.

Blue background—aim the camera up toward the surface.

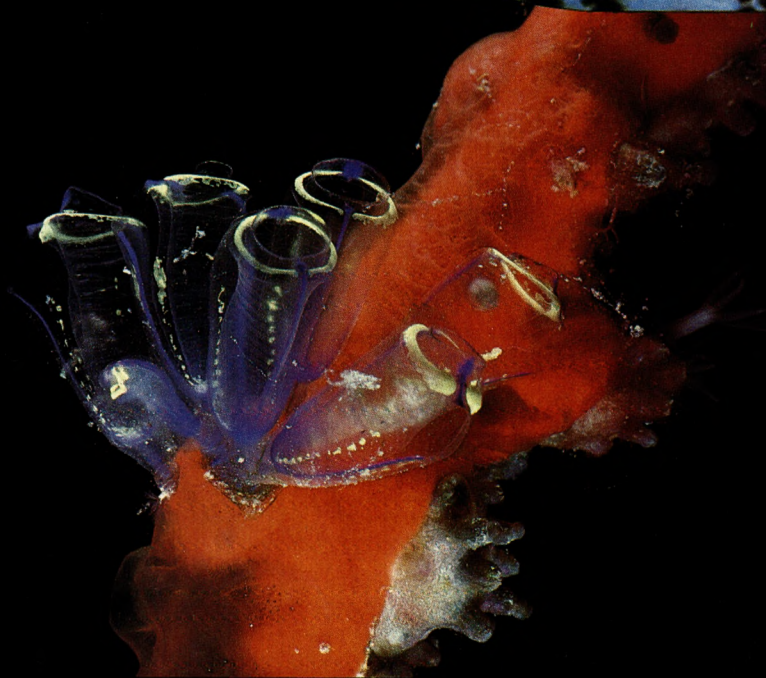
Color background—aim the camera toward a reef or sponge of specific color such as red, yellow, green, etc.

Choosing the correct color background can greatly enhance your picture by complementing the color of your subject. For example, a bright yellow crinoid arm is especially beautiful when framed against a velvet black background. This is achieved by aiming the camera in a horizontal angle and positioning it so that open water is directly behind the arm.

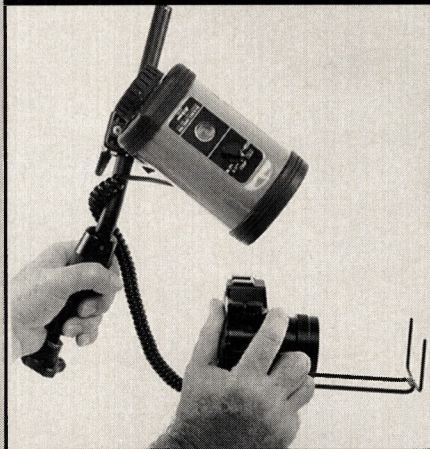
A dark brown arrowcrab really pops out of the picture when framed with a white sand background. An orange and white bristleworm is especially exciting when framed against bright green algae. It may take a little patience and coaxing to get the creature in position.

PICTURE COMPOSITION

Picture composition is the arrangement



THREE BASIC LIGHTING ANGLES



Front lighting



Back lighting



Top lighting

of the image or images in your photograph so they appear pleasing to the eye of the viewer. This arrangement can produce a variety of different effects ranging from a somber mood to cheerfulness to high drama or to humor. Picture composition is often a subjective topic of discussion, as pictures often evoke different feelings to different viewers. What might be funny to one viewer may be poor taste to another. However, there are some basic rules of composition that will help you produce more attractive photos.

The following are six basic points of macro composition: 1) subject position, 2) subject direction, 3) image completeness, 4) clear foreground, 5) clear background, 6) complementary colors. Let us review each of these points in detail.

Subject Position—Since you are in control of the wire framer, you can position your subject anywhere in the frame

you choose. In macro, the decision is fairly simple. Choose a singular subject and position it in the center of the wire framer.

The only exception to this rule is if you find a pair of subjects small enough for both to fit in the center of the framer.

Subject Direction—Generally speaking, it is best to position your wire framer so the subject is facing the camera lens. This is particularly true if the subject has eyes. Viewers don't want to see the tail of a fish; they want to see the head or face. The same is true with arrowcrabs, coral shrimp and other reef creatures.

Coaxing the creature to face the camera lens (and brightly flashing strobe) is not always easy. Many creatures are shy and tend to turn away from the camera. It often takes a great deal of patience to gain the confidence of your tiny subject.

Image Completeness—One of the most important rules of composition is to pho-

tograph a complete image. For example, a starfish with two legs out of the picture is not half as interesting as a complete starfish. The viewer feels as though something is missing when not all of your subject shows.

Centering your subject in the wire framer helps to achieve a complete image. If the subject is too large for the framer you may wish to surface and change macro set ups. An alternative is to seek smaller subjects. The wonderful thing about coral reefs is that there is generally a wide selection of subjects to choose from.

Clear Foreground—It is very important that the foreground of your picture not be cluttered by distracting objects or images. It sometimes helps to peer directly over the top of the camera body so your eye can visualize how the picture will look. Be especially careful of small

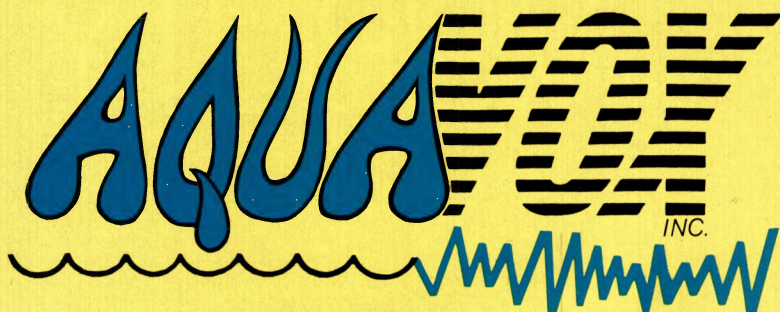
(Continued on Page 155)



Left: Never point the strobe directly back toward the camera lens. Below: One way to avoid framer shadow in side lighting is to remove the left upright on the framer.



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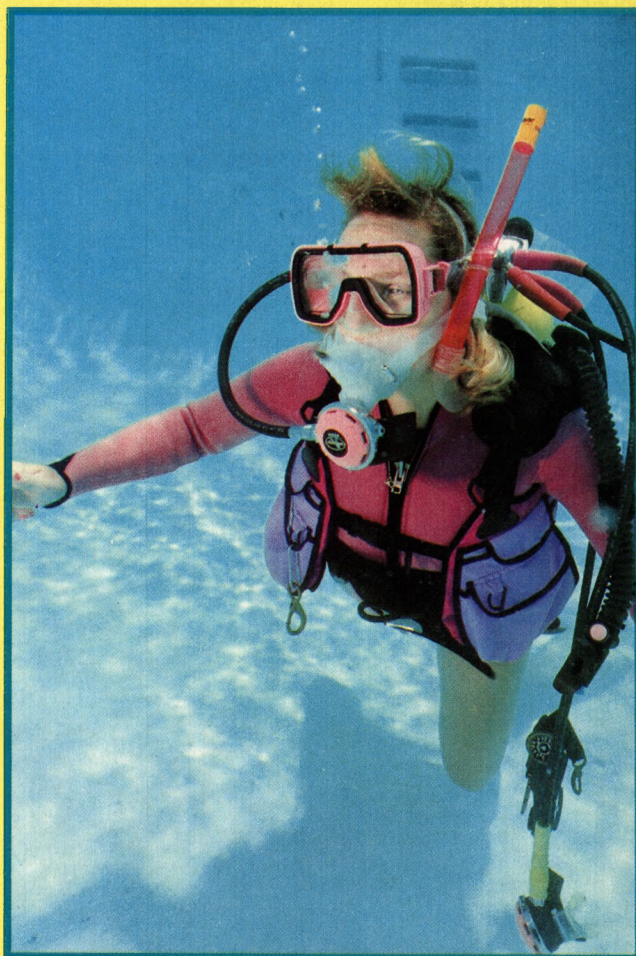
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BY BONNIE J. CARDONE

PHOTOGRAPHY BY DAVID B. BROOKS

It had to have been a photographer who, after taking many pictures of black neoprene clad divers, decided color was needed in their gear. That's because black neoprene eats light, making photographs of divers wearing it resemble the black holes found in space! The present trend toward colorful scuba equipment is not solely of benefit to photographers, however. It also allows those who want to express their individ-

uality to do so. And, it is safer, because you can see divers in colorful gear much farther than you can see those in black or dark blue, both topside and underwater. Yellow, especially, is a high visibility color and that is why we chose it for many of the items Jilda Trolio wears both on this page and the cover.

Ever lose a snorkel, knife, weightbelt, etc. and have trouble finding it underwater? That's another argument for brightly

(Continued on Page 153)



model/Jilda Trolio

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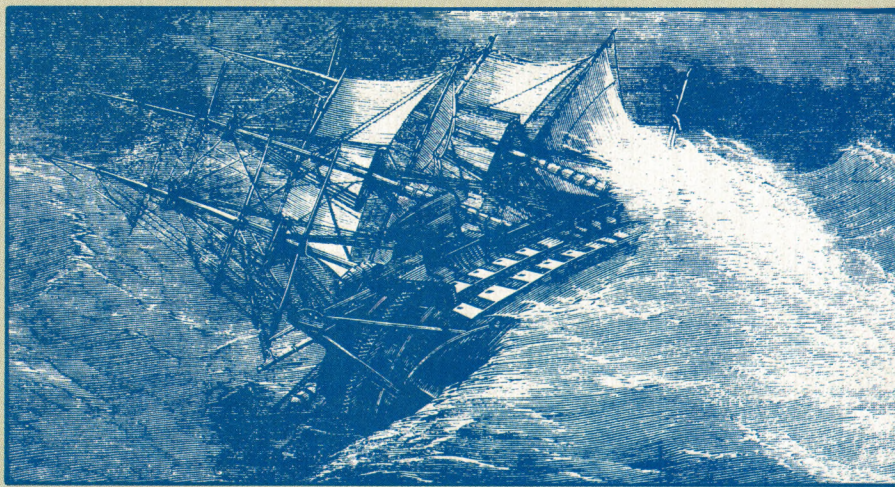
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Wreck Facts

BY ELLSWORTH BOYD

I hope to meet many of you at the California Wreck Divers annual awards banquet on January 23 aboard the *Princess Louise*, a ship/restaurant docked in Los Angeles Harbor. As the keynote speaker, I'll be sharing some interesting facts about shipwrecks with the audience. California Wreck Divers, founded in 1971, remains one of the largest and most active clubs in the Golden State. Its motto is "to perpetuate nautical history through organized research, recovery, restoration and display." I hope to see samples of the club's artifacts and meet some of the divers I have written about for years.

Aren't you relieved now that the Senate has passed a voice vote bill banning the sale of *Titanic* artifacts in the United

States? Our brash bureaucrats, many of whom bared their hypocritical souls during the Iran-Contra hearings, leaped to the forefront to save us from temptation. This important piece of legislation took precedent over the Persian Gulf dilemma, a Central American peace plan, welfare reform, the Farm Credit System issue, an increasing epidemic of AIDS and oceans Cousteau says are unbelievably polluted. Senator Lowell Weicker introduced and strongly supported the thrust against *Titanic* souvenir smuggling. Weicker is the one, if you'll recall, who wanted to blow up the *U-352*, the most popular wreck in North Carolina's Graveyard of the Atlantic. (See Wreck Facts, March 1987). I think we've got a deep problem here. If

we can't keep cocaine from being smuggled into the U.S. from South America, how are we going to prevent shipments of *Titanic* plates, cups and wine bottles from France?

Beware of a Frenchman who might appear from behind a building on a dark street pleading, "Monsieur, madame, would you like to buy a peeze of zee *Titanic*?" Don't even ask him the price. It cost the French-American expedition \$25,000 per day to put a submersible two and one-half miles down on the wreck. The plates and bottles would probably go for thousands of dollars each, far beyond most pocketbooks. The best advice I have for the Frenchman is, "go dive the *Lusitania*." The *Lusitania* has not been declared a marine memorial like the *Titanic*. Or, if you want to live vicariously, get a video of the *Titanic* exploration. Scientist Robert Ballard has contracted with Vestron Distributors to put out a videocassette of the wreckage. But, you can't rent the tape. It must be purchased, which shows there are easier ways to turn a buck on the *Titanic* than selling contraband china.

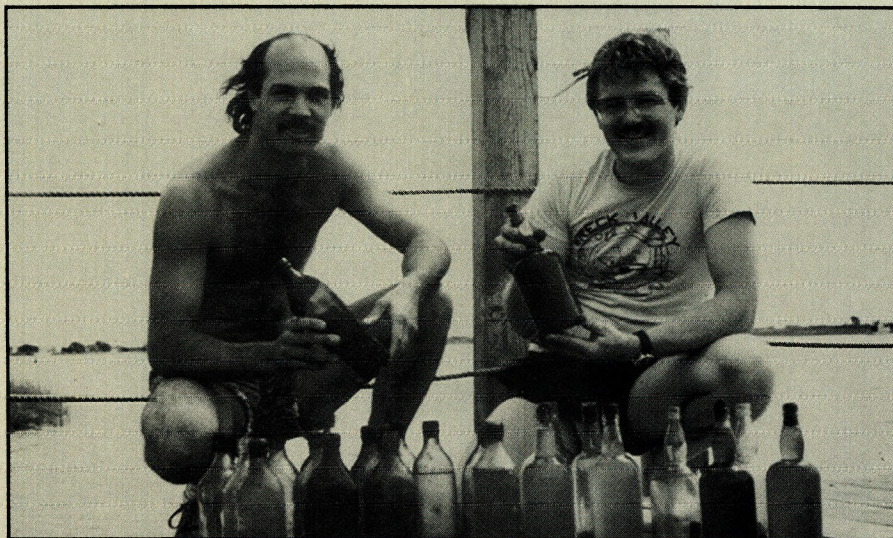
Dan Berg and his brother Bill, Steve Jonassen, Rick Schwarz and Bill Campbell are the only divers I know who have brought illegal booze into the country legally. Their cache from the rum runner *Lizzie D*, sunk in 80 feet of water eight miles southeast of Atlantic Beach Inlet—off Long Island's South Shore—is a throwback to the Roaring Twenties. The story of her sinking is just as suspicious as her cargo, a vast supply of Prohibition booze bound for New York speakeasies.

An 84 foot long tugboat, the *Lizzie D* is listed in the National Archives as being "on a cruise of the narrows," carrying no cargo when she sank on October 19, 1922. The entire crew of eight was lost and the boat reported "sunk owing to unknown reasons." Considering the mob monopoly of the era and competition among rum runners, it looks like something else was fishy as well as the ocean.

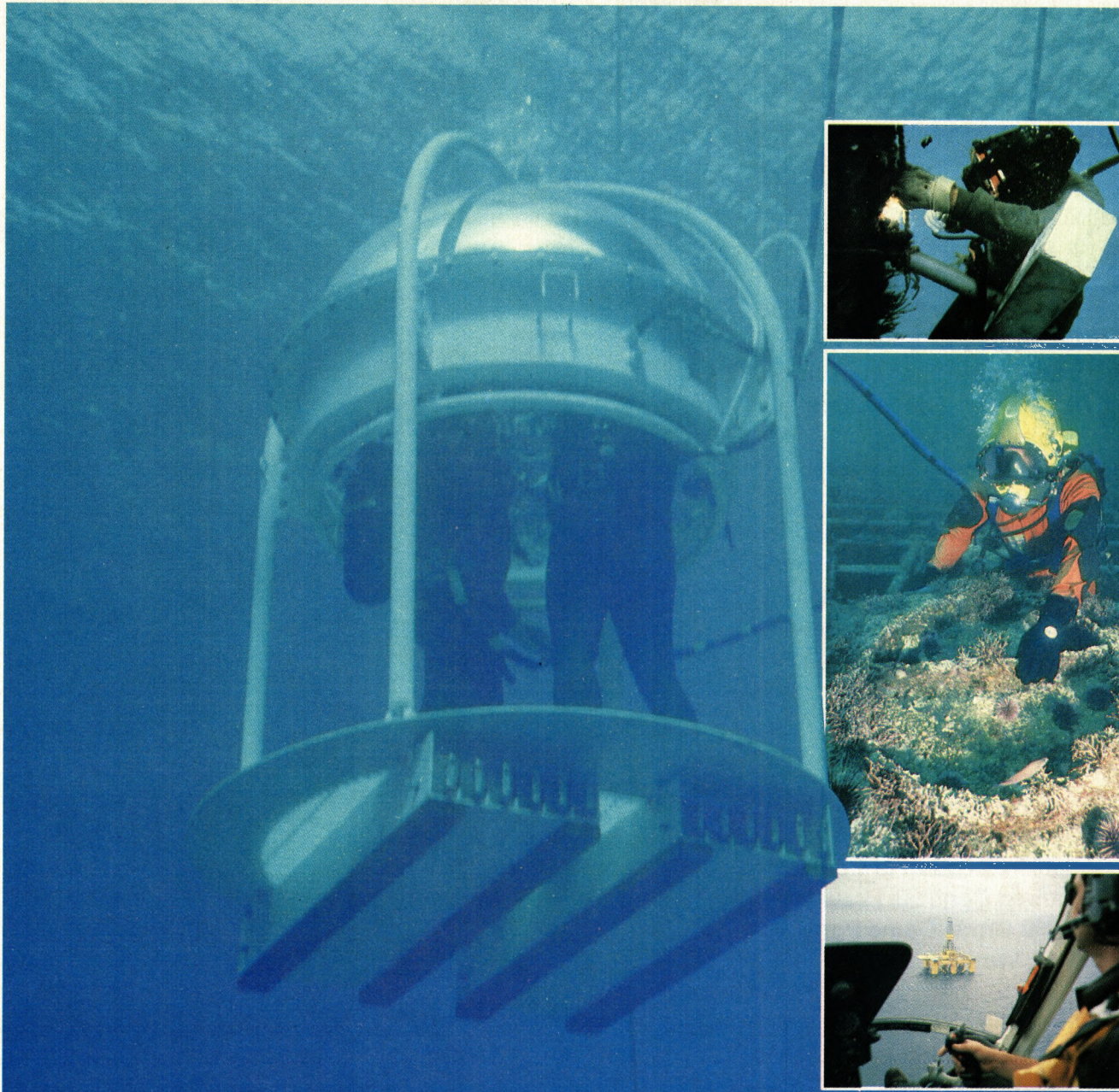
Dan writes, "Since the wreck's entire upper structure is gone, she looks like a giant rowboat with many openings in the main deck. The openings contain about two feet of broken glass, mud and there is total darkness when silt rises from the bottom. If a diver is lucky enough to find an unbroken bottle, it is usually empty, with the cork forced inside the glass. Increasing ambient pressure during the sinking compressed the small amount of air in a full bottle, causing the cork to be sucked inward." Dan says bourbon bottles held their corks best and four of them still contained the original product. I'd say 66 years is fairly aged whiskey, certainly enough to warrant a toast to the divers who found it!

I ran into Don Joyner on Big Pine Key
(Continued on Page 40)

Steve Jonassen and Dan Berg (right) with whisky bottles recovered from the *Lizzie D*.



photo/Rick Schwarz



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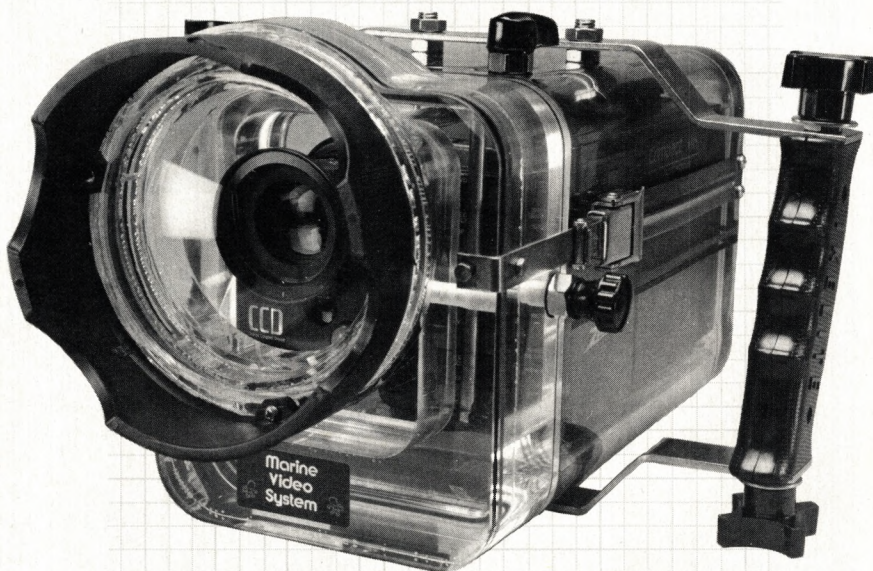
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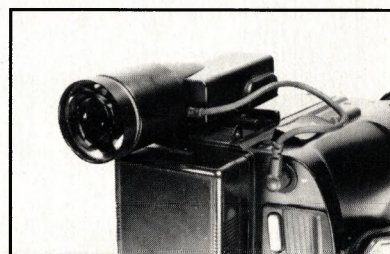
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Scuba Quiz

Category: Underwater Photography

Topic: Films

By Dennis Graver

There are a great many photographic films available today and the type selected affects your results. Once you select the right film, there are procedures, tricks and techniques for its use. After all of this comes the all-important step of processing. See if you know as much as you should about these aspects of film. The answers can be found on the following page.

1. Film speed refers to a film's:

- ☐ A. Light sensitivity
- ☐ B. Exposure latitude
- ☐ C. Exposure index
- ☐ D. Light sensitivity and exposure latitude

2. Film speed is rated with ASA, DIN and ISO numbers. Which of the following statements regarding these ratings is incorrect.

- ☐ A. ASA is an American value that doubles for each f/stop
- ☐ B. DIN is a German value that increases by three units per f/stop
- ☐ C. ISO is an international system that combines ASA and DIN
- ☐ D. Your exposure index equals the ASA or DIN value of the film being used

3. When high speed film is used, the photographer can:

- ☐ A. Use faster shutter speeds and smaller lens apertures
- ☐ B. Use slower shutter speeds and smaller lens apertures
- ☐ C. Use slower shutter speeds and larger lens apertures
- ☐ D. Use faster shutter speeds and larger lens apertures

4. Low film speed is usually selected to obtain:

- ☐ A. Finely detailed pictures
- ☐ B. High color saturation
- ☐ C. Increased depth of field
- ☐ D. A and B, but not C

5. Which of the following statements is true:

- ☐ A. Color negative film is usually identified by the suffix "chrome"
- ☐ B. The finest prints are made directly from color negatives
- ☐ C. Color reversal film has greater exposure latitude than color negative film
- ☐ D. Color negative film has greater exposure latitude than color reversal film

6. Select all true statements:

- ☐ A. When film is exposed and developed at a speed higher than its rating, it is "push" processed
- ☐ B. When film is exposed and developed at a speed lower than its rating, it is "pull" processed
- ☐ C. To expose film at a speed other than that suggested by the manufacturer, change the camera's film speed setting
- ☐ D. Special processing is required for film that is "pushed" or "pulled"

7. Select all correct statements. Film you load onto film cassettes yourself:

- ☐ A. Is less expensive than film that is commercially loaded
- ☐ B. Is of a lesser grade than commercial film
- ☐ C. Can provide more shots per roll
- ☐ D. Will not allow the last two shots to be exposed

8. Which of the following statements concerning X-rays and film is incorrect:

- ☐ A. The higher the film speed, the more susceptible the film is to X-ray damage
- ☐ B. X-ray damage is more likely with checked luggage than with film that is carried with you
- ☐ C. The results of X-rays on film are cumulative
- ☐ D. Exposed film is not sensitive to X-rays

9. To determine whether or not there is film in your camera, it is necessary to open the back of the camera. This statement is:

- ☐ A. True
- ☐ B. False

10. When loading film into your camera, you should (select all correct answers):

- ☐ A. Ensure that the film leader has at least one full wrap around the take-up spool
- ☐ B. Make sure the film is beneath the film pressure plate
- ☐ C. Leave the rewind knob in the rewind position temporarily
- ☐ D. Turn the rewind knob until slack is removed from the film cassette

Scuba Quiz

Answers: Films

1. A. Light sensitivity. Film manufacturers provide a standardized number to indicate how much light is needed for film to be properly exposed. This is printed on the carton and on the cassette. When the film speed number is low, e.g., 25, high light levels are needed for exposure, so the film is called "slow" film. High speed films, with ratings of 400, 800 or more, do not require as much light for good exposure.

2. D. Your exposure index equals the ASA or DIN value of the film being used. When film is used at a speed other than that suggested by the manufacturer, the speed at which it is used is called the "exposure index." If film rated at ISO 100 were exposed at ISO 200, the exposure index (EI) would be 200.

3. A. Use faster shutter speeds and smaller lens apertures. Photographers should be familiar with equal exposure values and the relationship between aperture, shutter speed and film speed. Doubling the shutter speed, e.g. 1/60 to 1/125, is the same as decreasing the size of the lens aperture by one f/stop, e.g. f/8 to f/11. Doubling the film speed, e.g. 100 to 200, has exactly the same effect as halving the shutter speed because the 200 film is twice as sensitive to light. Each time film speed is doubled, the next smaller aperture or 50 percent faster shutter speed is needed.

4. D. A and B, but not C. If there is sufficient light for exposure, slow films can produce finely detailed pictures with rich color saturation. Many photographers prefer slow films for close-up photography where lighting is controlled by a strong flash at close range. Film speed affects depth of field only indirectly. The smaller the aperture, the greater the depth of field. With slow film, small apertures may be used only with strong light at close range.

5. D. Color negative film has greater exposure latitude than color reversal film. Color negative film produces a negative from which prints can be made, while color reversal film produces a transparency with a positive image. We call the pictures from color negative film "prints" and the images from color reversal film "slides." Exposure latitude is the range of exposures that will produce an acceptable picture. Exposure latitude with print film is several f/stops, while with slide film it is usually only about one f/stop. Each type of film has its own advantages.

6. A, B, C and D. It is not difficult to expose film at an ISO rating that is higher or lower than that suggested by the manufacturer. This may be done intentionally or unintentionally, e.g., you may forget to change the ISO setting on your camera when changing film. The film can be processed at its exposure index, but you need to request special processing and inform the processor of the speed at which the film was exposed.

There is quite a bit to know about film, isn't there? Furthermore, there are many aspects of film not addressed in this quiz. You can learn a great deal about the film you use by reading the instruction sheet packaged with it. Most professional photographers suggest you learn to use one film well rather than using a variety of films. Another place to get more good suggestions about film is in an underwater photography specialty course.

7. A, C and D. The process of loading your own film, called "bulk loading," can result in quite a savings and provide several more shots per roll. You can get film of the same quality as that which is commercially packaged, but you will need to purchase it in 100 foot rolls, which provide about 20 rolls of 36-40 exposure film. The bulk loading process exposes the first couple of inches of film loaded onto a cassette, so the last two frames of bulk-loaded film will not produce images.

8. D. Exposed film is not sensitive to X-rays. Film is sensitive to X-rays until it has been processed. The effect is cumulative, so the risk increases each time you pass through security at airports. Lead foil bags provide protection, but the best method to avoid damage is to store the film in see-through containers and have it inspected by hand.

9. B. False. There are several ways to determine if there is film in your camera. The best way is to set the shutter speed to B (bulb), remove the lens, trip the shutter and hold it, then look into the camera. If there is film in the camera, it will be visible. You can also attempt to rewind the film without setting the camera to rewind. If tension is felt, there is film in the camera.

10. A, B, C and D. The film must go beneath the pressure plate. A full wrap around the take-up spool helps ensure the film will advance properly after closing the camera. Leave the rewind knob up, wind the slack from the film cassette, close the camera and advance the film a couple of frames. If the rewind knob turns when you advance the film, the film is loaded properly. You may then put the rewind knob down.

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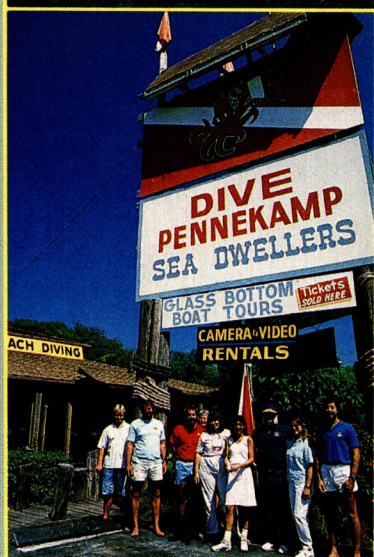
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SEA DWELLERS

**A FRIENDLY WAY
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TEXT AND PHOTOGRAPHY BY DOUG PERRINE

No matter how it defies logic, there's no getting away from it: Some folks just don't believe that anyplace as convenient and easy to get to as the Florida Keys could have good diving. I know better. Some of my most memorable diving experiences have been in the Keys—like the giant bluefin tuna that swam under me at Marathon or the two wild bottlenose dolphins that came by while I was hanging on the anchorline at Molasses Reef last spring.

One of the problems with the truly remote and exotic places in the world is that very often hungry natives have speared every fish in sight; dynamited the

reef to stun the fish; used bleach to get the lobster out; or even demolished it with crowbars and sold pieces as curios. This is why I love diving in Key Largo. After 20 years of protection, marine life in Pennekamp Park (state waters) and the Key Largo National Marine Sanctuary (federal waters) is as abundant as ever, but a special bond of trust has developed between human and fish as well. Divers aren't seen as threats, but as somewhat clumsy friends and possibly the source of free meals. Every year the fish get bolder.

For my money, the best diving in the sanctuary is at the southern end of Pennekamp. It is here that the Gulf

Top: The Sea Dweller III at Molasses Reef. Above, far left: Sea Dwellers owners and staff (Jann and T.J. Holub are second and third from right). Above left: Sea Dwellers photo pro Steve Finz. Above: Divers over Molasses Reef.

Stream comes closest with its clear blue water. Molasses Reef is the standard by which visibility is judged in the park. However good it is at Molasses, it's going to be a little less clear everywhere else. Molasses Reef is also the world's most popular dive site. And, with good reason: It is shallow, colorful and loaded with marine life. If you are an underwater photographer you will probably *never* get tired of diving Molasses. However, there are a number of other excellent sites very close-by. French Reef is noted for its shallow caves with schools of grunts, bigeyes and glassy sweepers. The *Benwood* is a 300 foot freighter that came to grief at the hands of a German U-boat. After taking a torpedo in the side, she tried to make it back to port, but was rammed by a friendly vessel on the way and finally ran aground. Her hull (minus the superstructure, which was dynamited as a hazard to navigation) rests in about 30 feet of water and is the summer home of a dense school of glass minnows, as well as hosting year-round resident porkfish, eels, groupers and invertebrates.

By the time this article reaches print, the Key Largo Marine Sanctuary should have two new stars: the twin Coast Guard cutters *Duane* and *Bibb* are scheduled to be sunk as artificial reefs just to the south of Molasses Reef in 110 feet of water, which should leave the superstructures in 60 feet or so. Both ships are 327 foot vessels launched in 1936 and 1937, re-

spectively. Designed for search and rescue work, the *Bibb* served during WW II in the Caribbean, Mediterranean, North Atlantic and Pacific. She rescued more than 400 men from at least five sinking ships. She later served off Vietnam and Massachusetts, where she "rescued" more than 100 tons of marijuana from at least two ships. The *Duane* had a similarly colorful history.

One of the many conveniences of diving in America's "drive-in" islands is that there is no shortage of diving operations to choose from. One establishment that has earned a reputation over 15 years for providing friendly, reliable, personable service is Sea Dwellers. At Mile Marker 100, across from the Holiday Inn, it is owned and operated by Captains T.J. and Jann Holub. The operation is managed on a day-to-day basis by Captain Phyllis Yover and a staff of eight. T.J. and Jann come by to troubleshoot and inculcate the staff with the company philosophy: "We've never forgotten that diving is fun!" as Phyllis expressed it. "We really have the divers' interests at heart," added T.J. "Everyone we have on staff is a diver. We try to eliminate the invisible shield between staff and divers. For instance, if the seas are more than four feet, we don't dive because it's no fun."

Sea Dwellers runs morning and afternoon two tank dive trips aboard the *Sea Dweller III*, a 49 foot, 46 passenger boat docked next to the Key Largo Holiday

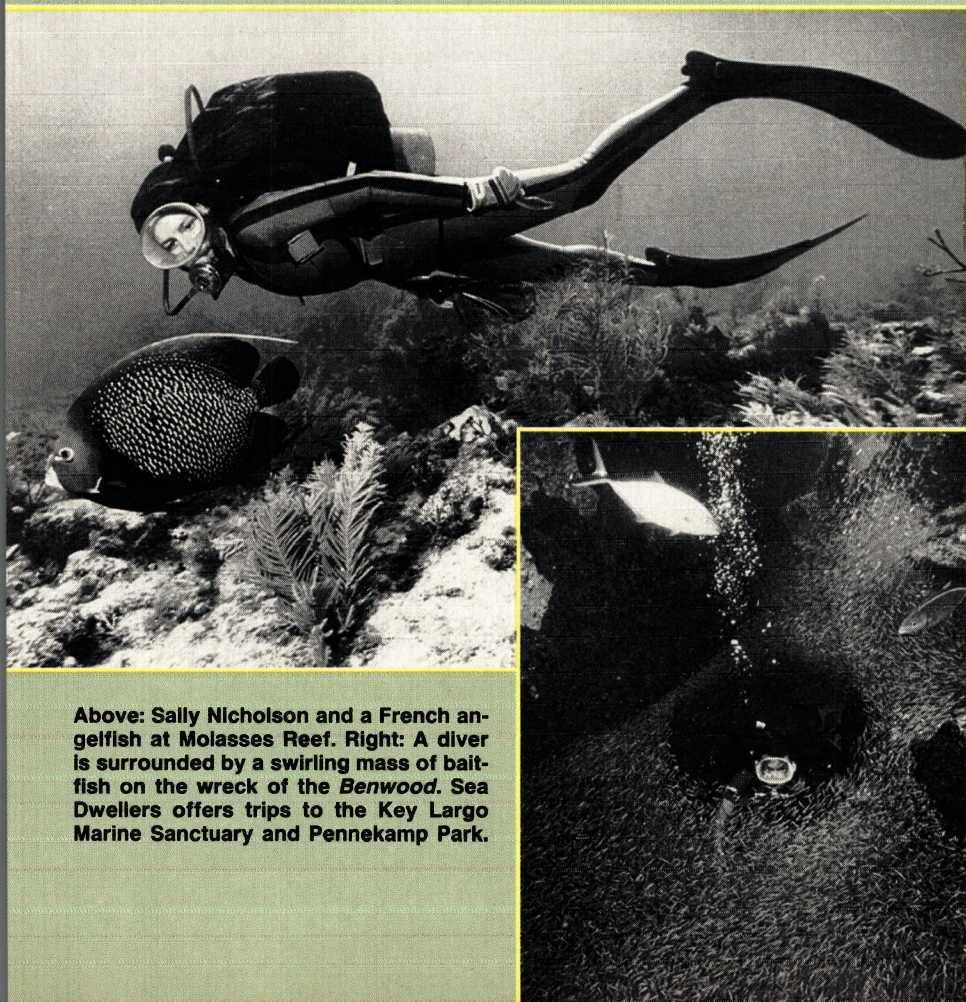
Inn. The boat is usually operated by Captain Ken Vaughn or Captain Dave Broadus, both of whom have earned a reputation not only for professionalism, but also as just downright pleasant people to be around. "To tell you the truth," T.J. confessed to me, "I'm a little bit jealous. People used to ask if I was going to be on the boat. Now they ask if Ken's going to be on the boat." T.J. explained that a lot of Sea Dwellers' success has been owing to its ability to tailor the diving to the needs of the customers. "The captains we have working for us are good," he said, "and they can read people, too. It's sort of a sixth sense."

In addition to the standard dives in the marine sanctuary, Sea Dwellers has special spots it occasionally visits outside the sanctuary, such as Pickles Reef and Little Molasses. Night dives, specialty dives and certification checkouts can all be arranged. The boat is sometimes chartered out to groups with special needs, such as marine geologists. Both PADI and NAUI instruction are available from Captain Dave and instructors Bobby Easom and Rob Southwood. Of course, any equipment you need can be rented or purchased here. The smiling faces behind the counter belong to Jackie Logan and Angela Ryan, also divers.

One specialty service that has been available for the past year now is the photo-video center operated by underwater photo pro Steve Finz. Finz managed one of Miami's largest video outlets for eight years before coming to Key Largo. A selection of photo and video equipment is on hand for rental so that you can bring home memories of your dive. Or, for a fee, Steve will accompany you himself, recording your U/W experiences on professional format complete with studio editing and musical soundtrack. A prepared cassette showing the major dive sites in the area is available in all the popular formats. Steve also has the exclusive contract to do U/W video at Dolphins Plus. This organization has been conducting snorkeling encounters with its tame bottlenose dolphins for several years. It is now arranging scuba encounters as well. This once-in-a-lifetime experience can be booked through Sea Dwellers.

For out-of-town guests, Sea Dwellers offers dive/hotel packages at the Key Largo Holiday Inn across the street. It has just been completely remodeled and features a beautiful pool and tiki bar, lighted tennis courts, lounge and restaurant. The 132 rooms and suites are up to the standards of Holiday Inn resorts around the world. With the dive boat a short walk from your hotel room, you can't get much more convenient.

For more information contact Sea Dwellers, 99850 Overseas Highway, Key Largo, FL 33037; (305) 451-3640 or (305) 245-0333 (in Miami) or (800) 451-3640 (toll free).

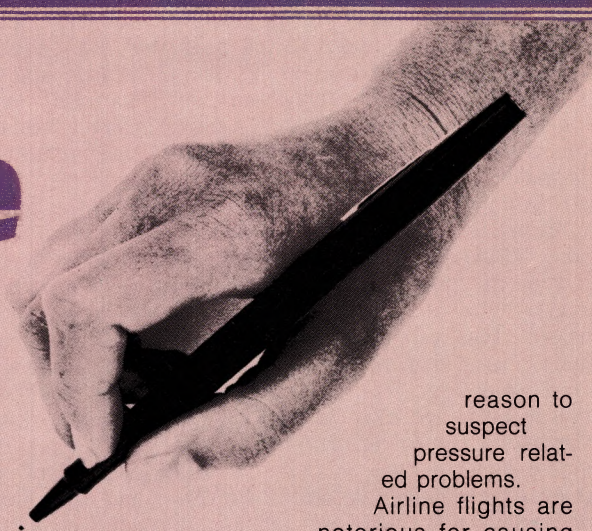


Above: Sally Nicholson and a French angelfish at Molasses Reef. Right: A diver is surrounded by a swirling mass of baitfish on the wreck of the *Benwood*. Sea Dwellers offers trips to the Key Largo Marine Sanctuary and Pennekamp Park.



Diving Medicine

BY ALFRED A. BOVE, M.D., PH.D.



It is time to review some of the letters I receive from readers. The topics listed below are typical of the kind of problems divers can encounter.

DIABETES AND DIVING

Most doctors experienced in diving medicine recommend that diabetics (who depend on insulin) not dive because of concern for unexpected hypoglycemia and resulting unconsciousness U/W. This event can result in a fatal accident.

There is no problem with snorkeling if the diabetic is in reasonably good physical condition and can perform the necessary exercise. If there are heart problems or problems with circulation to the legs, these must be considered as well.

Diving in shallow water presents minimal risk, but diabetics should be aware of the possibility of a hypoglycemic episode that might require a rescue. Diabetics and their partners must weigh the risks involved when deciding whether to dive.

DIVING AFTER HIP SURGERY

There are several divers I know personally who are diving after hip replacement. They have no problems with the hip and have been able to return to sport diving about a year after their surgery.

The surgery must be well healed and the patient must regain physical conditioning before returning to diving. There are no specific problems with diving, especially if the new joint is functioning well, the patient is pain free and can walk well.

It takes about a year to complete the healing process, get back in shape and get used to the new joint, all of which should be done before returning to diving. General health should be good (heart especially) and exercise capacity adequate for diving.

DIVING AFTER A HEART ATTACK

The advice for diving after a heart attack is the same as that usually provided for any kind of exercise. There is nothing unique to the diving environment. It affects the heart no differently

from any other kind of exercise. Patients must be able to exercise to a reasonable level, be able to withstand immersion in cool water and the attendant stress on the cardiovascular system, and be able to withstand the occasional stressful moments that may occur during diving if an unexpected failure of equipment or other such event occurs that can generate anxiety.

To make a judgement, I consider the effort needed for swimming with diving gear in a slight current. This might occur when returning to a dive boat or to shore. The exercise level for these contingencies is 12-13 mets (a unit of work). If this amount of exercise can be handled without oxygen imbalance to the heart and no chest pain or arrhythmias, then diving under comfortable conditions is possible. This can be evaluated by a stress test.

Patients can get in shape with a mild exercise program to achieve this level of work—if their hearts do not compromise activity.

DIVING AND PREGNANCY

When pregnant, short, shallow dives are of little consequence, and there is no reason to be concerned about the health of the baby after a dive shallower than 26 feet for a short interval. There are some experiments in goats and sheep that suggest the baby can get bends if the mother dives, but these exposures were long and deep. However, I suggest women do not dive during pregnancy. The concern is over the possibility of getting bends or air embolism and requiring oxygen for treatment. During treatments, the baby could be harmed.

PHLEBITIS AND LEG PAIN

The problem of thrombophlebitis and post-phlebotic syndrome is not a common one among divers. I will try to provide some basic ideas that might help. First, I do not think pressure changes will cause pain and swelling of the leg. There are no air spaces in the tissues of the leg and there is no

reason to suspect pressure related problems.

Airline flights are notorious for causing problems with leg veins. The problem when flying is the prolonged sitting with the knees bent and the relative inactivity of the legs. This situation produces stasis of blood in the veins, distension of the veins, and can result in pain and swelling after the flight. To avoid this problem, stand and walk as much as possible while on the plane, and keep the legs straight when sitting whenever possible.

The problem with diving is not as clear. There are shifts of blood in the veins that occur when someone is immersed in water. These result in less congestion of the leg veins. Blood is shifted into the chest when the water pressure counters the gravity effects on the blood in the legs. There are two possibilities: First, the patient may experience post diving vein distension as the blood shifts back into the legs after diving. This would cause pain and might cause some swelling. The other possibility is the reduction in size of the veins while diving, which could also result in discomfort if the veins are scarred from old inflammation.

In any case, there is no problem with diving, since these problems with veins do not cause any specific diving disability. Patients should be aware of the precautions involved when there are chronic vein problems and to avoid situations that cause blood flow to slow in the veins.

Walking or jogging might be added to the exercise program, with the idea that these exercises will provide more action of the calf muscles and may improve the function of the veins there.

SARCOIDOSIS

Sarcoidosis can affect the lungs and produce air trapping, thereby putting divers at risk for air embolism. Those affected should be sure their exercise tolerance is adequate for diving. If the pulmonary function tests are normal and they are in good condition,

(Continued on Page 123)

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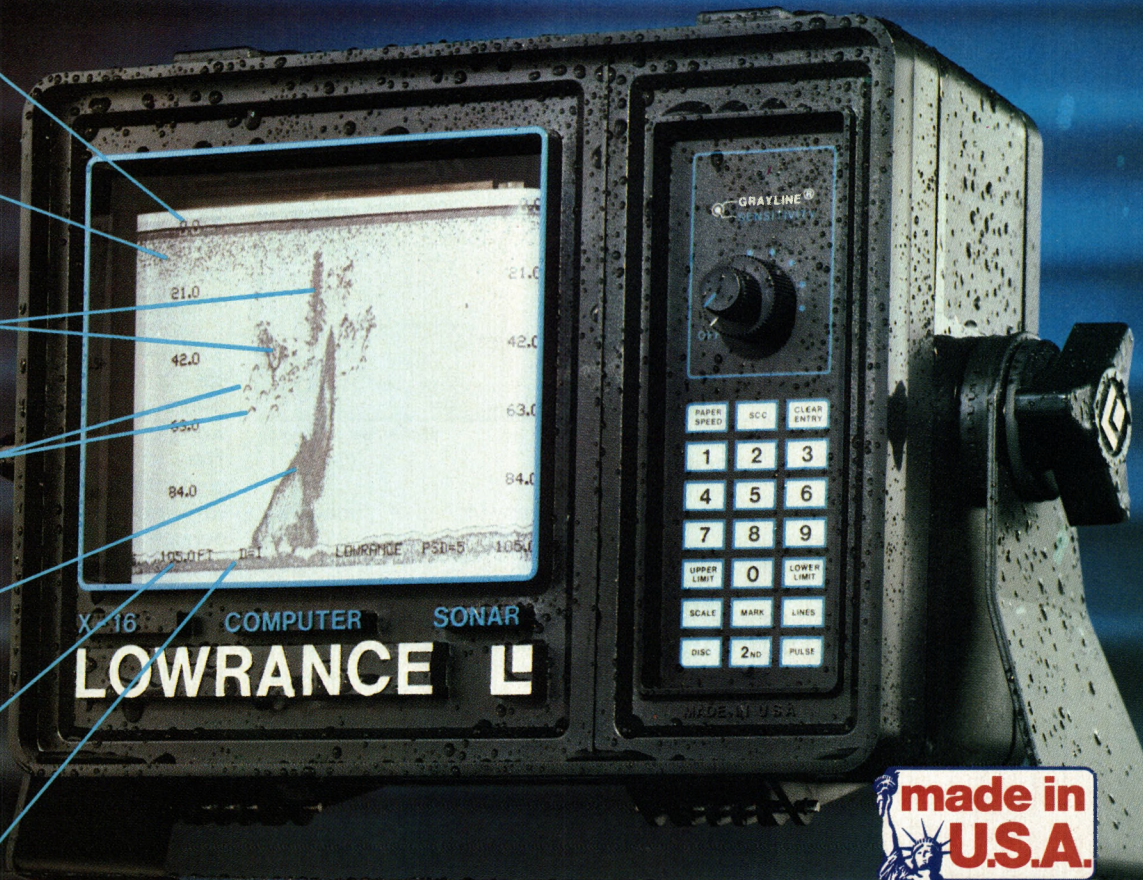
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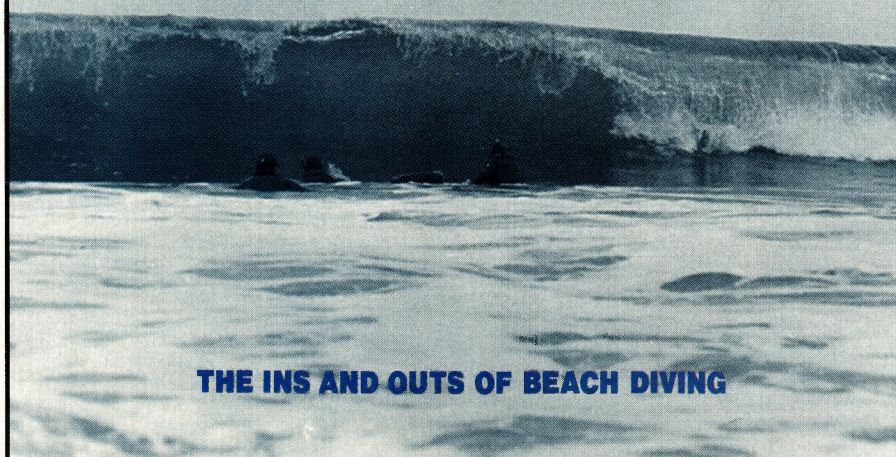
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GO WITH THE FLOW



THE INS AND OUTS OF BEACH DIVING

photos/Paul J. Tzimoulis

BY GREGORY KING

I've found that if you want to strike sudden terror in the hearts of some people, all you need to do is whisper "beach dive" in their ears. Then, sit back and listen to the horrible tales of being dumped in a heap at the water's edge, of lost dive gear and of sand scraped egos. You'll hear divers downgrade the beach dive

and extol the many virtues of a boat dive.

But, really, what is a boat dive? It's a dive from a boat. And, what is a beach dive? It's a *dive* from a beach. The beach is nothing more than the obstacle that lies between a diver and the water. And, I know a lot of divers who miss a lot of great diving because they're afraid to

battle the surf.

It's no wonder so many divers don't like beach diving. I sit on the shore week after week, before or after a dive, and watch as divers boldly enter the surf, only to be dumped on their beavertails. And, if they're not dumped, they expend all their energy—mental and physical—just getting through the surf! And, the surf isn't the dive, it's only the doorway!

I watch as the divers prepare their gear, checking everything thoroughly. Buddy teams help each other. Once all their gear is on, double-checked and secure, they don their fins, clamp their regulators in their mouths and shuffle backward into the surf. A few minutes later they are often deposited in a heap in two feet of water, embarrassed, discouraged and sometimes hurt.

I'm no statistician, but this general lack of finesse in getting through the surf seems to apply to about two out of five divers. (And, there are many more that won't even attempt to dive off a beach). They're extremely careful about their gear and all the other preparations: So why are they dumped? Lack of confidence? Too much confidence? Early potty training? No.

There's only one thing they forget to do and I'm sure it was something they were taught in class: They don't pause and see what mother nature is doing. They may glance uneasily at the breakers and won-

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The two most important rules to surf entries are to: (1) Watch for the wave set. (2) Determine the lull. Also, never hesitate to abort a dive if conditions are too dangerous.

der if they'll get through them alive, but beyond that reverent glance, they just shuffle in and go.

In talking to these people one finds they are either new to the sport, occasional divers or are getting involved again after a few years away from diving. They are usually so involved making sure all

their gear is in place and in trying to remember diving physics that they forget about surf etiquette.

In my 16 years of California coast diving I've learned one important rule: You gotta go with the flow. You have to work with the ocean. Mother nature is no respecter of persons and unceasingly

churns the surf. To the untrained eye, wave action may appear chaotic. But, there is incredible order and predictability to it.

So, in the interest of safety, I would like to impart some information to divers—old and new—who expect to make a surf dive at any time in the near future. There are only two key things to remember: 1) Watch for the set. 2) Determine the lull.

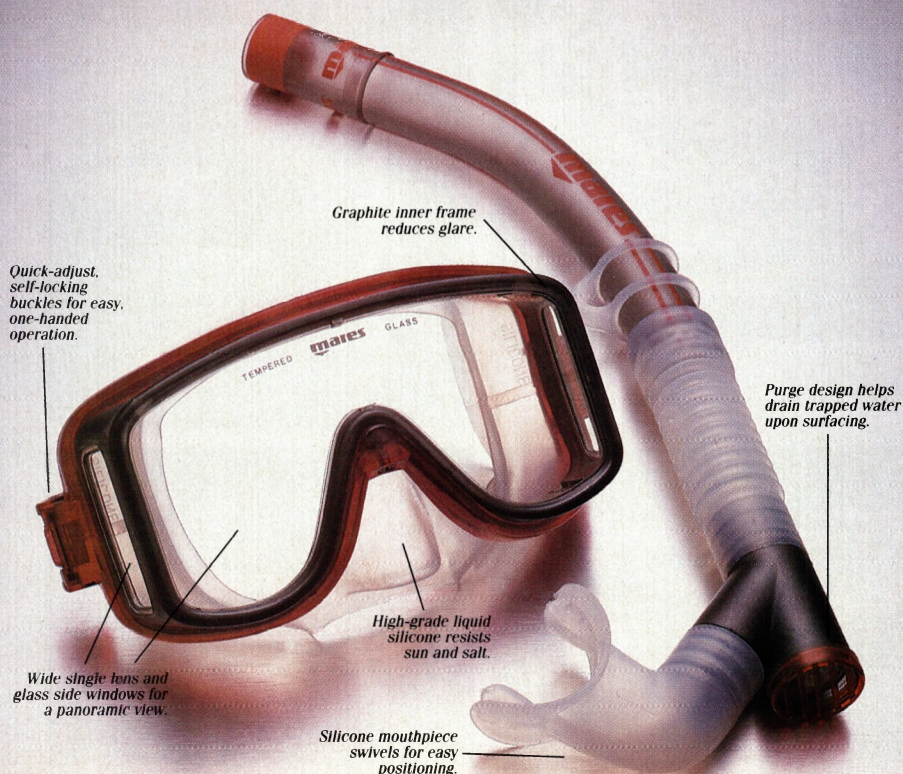
Waves come in sets! A set may contain two, three, four, five or even six waves. A six wave set often consists of three smaller waves, followed by three larger ones. However, sets come in many shapes, sizes and durations, usually determined by wind, recent storm activity and the coastal region. As a diver, the only thing you need to determine is how many waves there are to a set. It varies day to day, location to location.

Now the good news: A set is always followed by a lull or "window"—an entry or exit window, depending on which end of the dive you're involved in.

A window can last as long as 30 seconds or may be so short as to afford no perceptible difference between sets. (On occasion I've even seen one minute lulls.) In the case of no perceptible window, your decision to continue the dive should be based on the size of the waves, shoreline composition and your swimming ability. (By the way, a decision

(Continued on Page 142)

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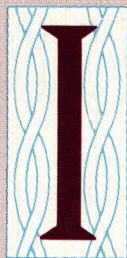
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ATOCHA TREASURE AUCTION



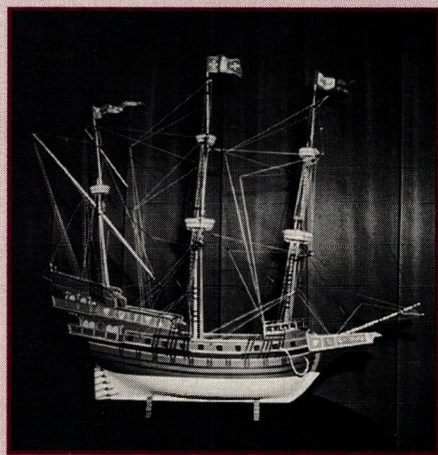


It took Mel Fisher 17 years to find the mother lode of *Nuestra Senora de Atocha*. When he did, in July of 1985, his divers brought up treasures that dazzled the world. There were gold chains, gold jewelry, gold bars and gold discs, all as bright and beautiful as they

were when the *Atocha* went to the bottom of the ocean in 1622. There were hundreds of silver ingots—weighing between 60 and 98 pounds each. They were stacked on the bottom and serving as lobster condos when found. There were thousands of silver coins. And, there were emeralds, fabulous emeralds, of a quality and size unheard of today.

You can imagine the excitement experienced by those who had struggled so long and hard to find the *Atocha*'s riches when their search was finally rewarded. It was many more months, however, before the treasure was divided. Computers decided who was to get what in October 1986; the actual handing over of the various items occurred in the spring of 1987.

SPANISH ARTIFACTS GO FOR BIG BUCKS



Top left: Potential bidders could view some of the artifacts to be auctioned off on display in a private hotel suite. Bottom left, clockwise: This gold chain sold for \$100,000. Jim and Angie Willsey with a 65 carat emerald and a gold ingot. Fisher turned down \$750,000 for this gold cup from the *Margarita*. The auction took place at Caesars Palace in Las Vegas. The gold and coral rosary was bought for \$375,000. Above: A model of the *Atocha*.

While it would be nice to have a stack of silver ingots lying casually about one's home or be able to fondle a gold bar that had spent centuries beneath the sea, actual money is needed to pay the bills and provide food and shelter! Thus, most of those who shared the treasure must sell at least some of it. (Some of the artifacts belong to the State of Florida and are on display in a museum in Tallahassee. Treasure Salvors Museum in Key West also displays *Atocha* treasure.)

The first auction of *Atocha* treasure took place September 26, 1987 at Caesars Palace in Las Vegas. The Romans were known for their excesses and Caesars Palace recreates many of them very satisfactorily, with a modern touch, of course. It's hard to imagine an area that would provide more similarities or contrasts with treasure from a 17th century Spanish galleon. For instance, imagine a bronze cannon on display just a few feet away from slot machines, craps, roulette and black jack tables! Or, imagine viewing a replica of Michaelangelo's David (in a Caesars' shopping corridor) and a delicate looking coral and gold rosary (from the *Atocha*) both within a few minutes.

The auction—which also included artifacts from the *Santa Margarita*—was arranged by Historical Treasure Management, along with Columbus Industries. HTM was founded in 1986 to market *Atocha* material. Doug Douglas is the president, his son in law, Jim Willsey, is director. A Reno based mining company, Columbus Industries also markets antiquities. The auction took place in the Circus Maximus. This is Caesars' all purpose showroom: There can be a brunch in the morning, a special event in the afternoon and a show, such as that put on by magician David Copperfield, at night.

For several days before the auction some of the artifacts to be sold were on display in a private suite, complete with armed security guards and plain-clothes policemen. There were silver ingots stacked on the floor; a conglomerate of silver coins in the shape of the wooden chest that once held them on a coffee table; emeralds casually scattered on a mirror; and various gold bars, discs, chains and other items out in the open on velvet covered tables. There was always a guard hovering nearby and when it looked as if someone was about to pick something up, the guard would be quick to point out that this was not allowed.

The auction took place on Saturday, September 26. A ticket costing \$100 admitted two people. If you bought anything, the \$100 went toward your first purchase. Catalogues showing the 368 lots to be auctioned off were \$25 each. The items to be sold had been numbered and videotaped and were shown on a huge screen as the auctioneer described

them. The auction was simulcast in Los Angeles and San Francisco, so bidders in Circus Maximus were competing with people viewing the auction in those cities as well.

While the auction was going on, Life-styles of the Rich and Famous was videotaping it and interviewing some of the people present. The cable TV show had taped a segment with Mel and Deo Fisher (who were at the auction) earlier.

We were alert and eager when the auction began. When we filed out more than three hours later, we were somewhat dazed and definitely exhausted. Lot after lot was sold in rapid succession. When one auctioneer got hoarse another would take over. There were no coffee breaks! Four of us were involved in writing down the prices bid so we would have some idea of the total volume. When I got up to take three pictures of the auctioneer, I missed the sale of six items! Luckily, when we compared notes later on, we had prices for all but one lot.

An exquisite, two handled gold cup from the *Margarita* brought the highest bid; \$750,000. This was one of the only items Fisher had in the auction. He believes the cup is worth more than that and we learned later he had turned the bid down. Nothing else came close in price. The coral and gold rosary sold for \$375,000, as did the conglomerate of about 2,000 silver coins in the shape of the wooden chest that once held them. A five foot long gold money chain and a 65.73 carat emerald sold for \$300,000 each. A 64.50 carat emerald went for \$250,000, while a 15 carat gold ingot weighing 1,672 grams was \$150,000. Everyone seemed surprised that an 18 foot long gold chain (in five pieces) sold for only \$25,000 while a gold filigree bead, less than one and one-half inches long, went for \$12,000. A gold disc could be had for \$60,000; a silver wine cup for \$32,500; a clay pipe bowl for \$650; silver ingots for about \$20,000. A gold ingot sold for \$170,000 and a gold bar for \$110,000. The silver incense burner went for \$47,500. A two reales silver coin in excellent condition sold for \$1,400. Other silver coins sold for as little as \$750. The bronze cannon that had been displayed on the casino floor sold for \$19,000. The cheapest items were copper ingots, weighing from 23 to 79 pounds. One of these could be had for just \$400. They were described by one person—aptly, I felt—as resembling cow pies!

When all was said and done, the first auction of the *Atocha* treasure netted about \$4,886,000 (not counting the \$750,000 bid on the *Margarita* cup). In October there was a benefit/sale in Texas that netted \$10,000, with a percentage of the proceeds (donated to the Children's

(Continued on Page 37)

TEXT AND PHOTOGRAPHY
BY BONNIE J. CARDONE

Diver's Calendar

FROZEN FIN DIVE

The Southeast Connecticut Skin Diving Club will host its 23rd annual Frozen Fin Scuba Event **January 1** at Green Harbor Beach, New London, Connecticut. There will be an underwater hunt for prizes and a cookout.

For information contact Mark Winslow, 22 Meryl Court, Groton, CT 06340; (203) 449-9208 or Brian Bossie (203) 848-3385. ✽

CAVE DIVING WORKSHOP

The National Speleological Society Cave Diving Section will host its 14th annual Winter Workshop **January 2-3** at Branford High School in Branford, Florida. There will be lectures, slide shows, film and video presentations and more.

For information contact NSS Cave Diving Section, P.O. Box 950, Branford, FL 32008-0950. ✽

U/W ARCHAEOLOGY CONFERENCE

The Society for Historical Archaeology will host its annual conference on historical and underwater archaeology **January 13-17** at Bally's Hotel in Reno, Nevada.

For information contact Donald Hardesty (ACUA), Department of Anthropology, University of Nevada, Reno, NV 89557. ✽

CATALINA CLEAN-UP

The 1988 Avalon Underwater Clean-Up will be held **January 16** at Catalina Island, California. The harbor, Lover's Cove and the Underwater Park are targeted for the sweep.

For information contact Bud or Nanci Davis, The Blue Dolphin House, P.O. Box 2605, Avalon, CA 90704; (213) 510-1811. ✽

CAL. WRECK DIVERS BANQUET

The California Wreck Divers will host their annual awards banquet **January 23** on the SS *Princess Louise* in San Pedro, California. Ellsworth Boyd will be the keynote speaker.

For information contact David Lee at (818) 576-8293 or Jerry Parrott at (818) 367-5002 or by writing CWD, P.O. Box 10571, Marina del Rey, CA 90291. ✽

SHELL SHOW

The Greater Miami Shell Club, Inc. will host its Shell Show **January 28-31** at the North Miami Armory, 13250 NE 8th Avenue, Miami, Florida. There will be dealer displays, door prizes and raffles.

For information contact B.J. Larson, 4540 SW 97th Avenue, Miami, FL; (305) 554-1981. ✽

CATALINA ISLAND PHOTO COMPETITION

The second annual Catalina Island Underwater Photo Competition will be held **February 5-7** on Catalina Island, California. The event includes a seminar, cocktail party, deluxe brunch, film, awards and prizes.

For information call Bud or Nanci Davis (213) 510-1811 or write Blue Dolphin House, P.O. Box 2605, Avalon, CA 90704. ✽

OCEAN EXPO '88

Ocean Expo Productions, Inc. will host Ocean Expo '88, a scuba diving and ocean sports show, **February 19-21** at the Coconut Grove Exhibition Center, North Miami, Florida. There will be exhibits, films, videos, lectures, a photo contest, door prizes, demonstrations, hands-on activities and children's events.

For information contact Ocean Expo Productions, 1141 NE 142nd St., North Miami, FL 33161; (305) 891-6095/891-6581. ✽

ST. PETERSBURG SHELL SHOW

The St. Petersburg Shell Club, Inc. will host its 41st annual Shell Show at the Community Center, 1 Park Place and 106th Avenue, Treasure Island, Florida **February 26-28**. Shell collections will be displayed and there will be shells and shell related items for sale.

For information contact the St. Petersburg Shell Club, c/o Betty Liipe, 440 75th Avenue, St. Petersburg, FL 33706; (813) 360-0586. ✽

BOSTON DIVING SHOW

Bill Lovin will headline this year's Boston Diving Show **February 27** at the Boston Park Plaza Hotel, Boston, Massachusetts. In addition to the film show, there will be seminars and workshops.

For information contact Fred Calhoun, P.O. Box 291, Back Bay Annex, Boston, MA 02117. ✽

OFFICE BASED SPORTS MEDICINE

The fifth annual Office Based Sports Medicine program, a postgraduate, extension course in medical education, will be held **February 27-March 5** in Snowbird, Utah. The course is approved for ACCME, AMA and CMA credit.

For information contact the University of California, Extended Programs in Medical Education, Room U-569, San Francisco, CA 94143-0742; (415) 476-4251. ✽

SOUTHWEST SCUBA DIVING EXHIBITION

Underwater Adventures will present a scuba diving exposition **March 5-6** at the Market Hall in Dallas, Texas. There will be aquarium displays; seminars; demonstrations; mini courses in CPR, ecology, underwater rescue and recovery, U/W photography and video.

For information contact Underwater Adventures, P.O. Box 28883, Dallas Texas, 75228; (214) 270-7070. ✽

SEAVIEWS '88

Seaviews '88, a scuba diving symposium, will be held **March 11-13** at the Oakland Hyatt Convention Center in Oakland, California. There will be exhibits and seminars on such topics as underwater photography, travel, medicine, underwater hockey, equipment maintenance and wreck diving. There will be film festivals Friday and Saturday night.

For more information contact Seaviews '88, 16158 Yale Avenue, San Lorenzo, CA 94580; (415) 278-6119. ✽

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BUILDING YOUR OWN VIDEO STORY

TEXT AND PHOTOGRAPHY
BY JIM AND CATHY CHURCH

Knowing how to shoot a good video story is more than just learning how to use the camera controls, holding the camera steady or being able to dive all the exotic destinations. You must know how to join a wide variety of shots together in a meaningful sequence that tells your story.

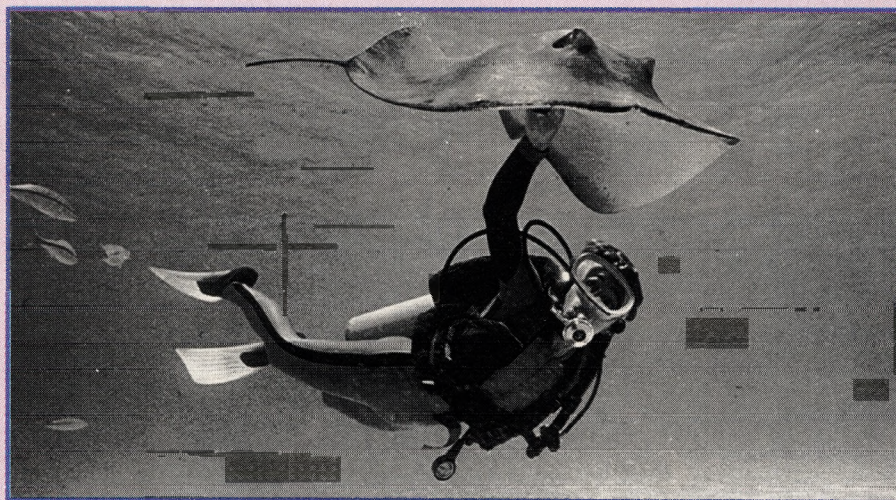
THE STORY LINE

Even if your video features only one action or subject, you should try to tell a story. The story line needn't be complex, but it should strengthen pictorial continuity and provide buildup to the main action. A basic story line has a beginning, a middle and an ending, presented in a logical order. The beginning provides the main buildup that prepares the viewer for the middle (the main action) and the ending resolves the story.

The middle of the video often has a series of action sequences and/or static scenes—and many of these will have a mini-beginning, middle and ending.

YOUR SHOOTING PLAN

A story line usually requires a shooting plan, however detailed or casual. While professionals may prepare detailed



shooting plans (assuming controlled conditions), most sport photographers shoot spontaneously or on impulse. Because they often can't control conditions (choice of dive site, other divers, etc.), their shooting plan may only be a mental list of the basic shots. The most commonly used of these are the LS, MS, CU and LS pattern. The first LS of the sequence establishes the overall scene; the MS and

CU shots identify and show the action or main subject; and the ending LS reestablishes the overall scene, resolves the action and prepares the viewer for the next action or subject. Cut-in and cut-away shots can be added to the LS, MS, CU and LS pattern to add buildup and "punctuate" the sequences as you would punctuate a sentence.

Whenever possible, make a list of the

Opposite page, top: This LS, showing rays approaching Cathy Church, establishes the underwater scene for the viewer. **Opposite page, bottom:** This MS shows Cathy and a ray swimming together. It introduces the action. **Below:** This CU pinpoints the action—the ray gliding in close to Cathy's face in hopes of receiving food. **Right:** This combination MS and CU (equivalent to a LS, in this case) shows the ray gliding away from Cathy (toward the camera)—ending the action sequence.



fish in a fish book followed by a CU of the lionfish's picture in the book? These shots would establish the quest. Then, you could show the divers entering the water, with an overlap of them swimming down from the surface.

On the bottom, you could show a diver pointing at the fish and holding the waterproof fish book out to another diver. Next, to increase buildup, you could shoot a cut-in CU shot of the diver's finger pointing to the fish's picture and description, followed by a cut-away to the diver's face as he looks at the book. Then, reestablish the overall scene by showing the diver pointing at the fish.

Now that you have used buildup shots to prepare the viewer, move in and take your CU shots of the lionfish. Assuming that you need enough time to add narration, shoot several short scenes from different camera angles. These will be more interesting than a single long scene of a non-moving fish.

Let's see how you could write a shooting plan for the lionfish example:

1. TITLE: The Quest for the Lionfish
2. LS: Group of divers, one with a fish-book (or chart)
3. MS: Head and shoulders shot of divers looking at book
4. CU: Diver's finger pointing at photograph of lionfish
5. CU: Cut-away to diver's face
6. MS to LS: Divers close book and walk out of frame

The above shots provide a basic introduction. Now it's time for the middle scenes and more buildup:

7. LS: Divers on boat gearing up
8. MS: Diver steps off dive platform
9. LS or MS: Overlap shot of diver breaking through the surface and swimming down to the bottom
10. LS: Divers swimming slowly along the reef looking for the lionfish
11. MS: Diver points to lionfish, hands fish book to another diver
12. CU: Cut-in of diver's finger pointing at photo in fish book
13. CU: Cut-away to diver's face
14. MS: Diver pointing at lionfish (to reestablish the action)
15. CU: Several close-up shots of the lionfish—if the lionfish swims away, you have a natural ending.
16. MS: Diver looking at the lionfish
17. LS: Divers swim away and out of frame (to resolve the story)

USING BUILDUP

What if you have some spectacular footage of a rare or interesting subject: a Japanese Zero fighter in shallow water, some close-up shots of a shark or baby whale or a divemaster handfeeding stingrays? Should you begin your video by showing this footage? No! Don't begin with your key scenes; prepare your view-

(Continued on Page 148)

main subjects and the shots you intend to take. To get started, try making simple sketches on 3 x 5 inch cards. Modify and rearrange the cards to show the sequence of your shots. Then, list these shots on a dive slate for U/W reference. Professionals often make detailed sketches and attach these to a bulletin board (to create a story board) or place the sketches in a binder (to create a

shooting script).

Suppose, for example, your main subject is a lionfish. This is a static subject—it tends to stay in one place unless disturbed. A non-moving fish, however, won't hold your viewer's attention long if a static view is all he sees. But, what if you make the lionfish the target of a quest? What if you use buildup shots—a topside view of divers looking at the lion-



THE GOURMET LOBSTER

TEXT AND PHOTOGRAPHY BY MARTIN G. EVENSEN

Over the years I have enjoyed reading many fine articles on the North American lobster, *Homarus americanus*. They have given me information on finding, catching and cooking lobsters. After trying many different recipes, I have found I still prefer my lobster boiled. It is a shame to cover up such a phenomenal piece of meat with all those sauces, as delicious as they may be. What I have attempted to do is to find ways to prepare nature's finest fare by using the KISS (Keep It Simple Stupid) method. I add ingredients that will enhance the irresistible flavor, not cover it up.

First though, a little information: Did you know that most of the lobster is edible? The exceptions are the shell, the small crop or craw in the carapace and the dark vein running down the back of the tail. Yes, even the liver—tomalley—(green material) and the undeveloped eggs or coral (red material) are supposed to be delicious. Notice I said, "supposed to." As of yet I haven't had the nerve to try them.

In certain parts of the country, lobsters are classified according to their size. And, they are only sold using these classifications. They are as follows:

1 lb. = Chickens
1-1½ lb. = Heavy chickens
1½ lb. = Quarters
1½-1¾ lb. = Selects
2 lb. = Deuces
2-2¼ lb. = Heavy selects
2¼-2½ lb. = Small jumbos
2½-4 lb. = Jumbos

Obviously, the person who made up these classifications wasn't a Northeast diver. If he/she ever saw some of the bugs we have brought up around here he/she wouldn't call a four pounder a jumbo! Oh well! What could you expect from someone who's classified a lobster as a chicken?

Now, let's talk about cooking. First, the water in which a lobster is boiled should always be salted. Don't add the salt until right before you put the lobster in. If you put the salt in too soon, the water becomes acidic and will affect the lobster's flavor. (This is true with any

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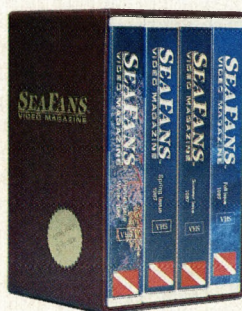
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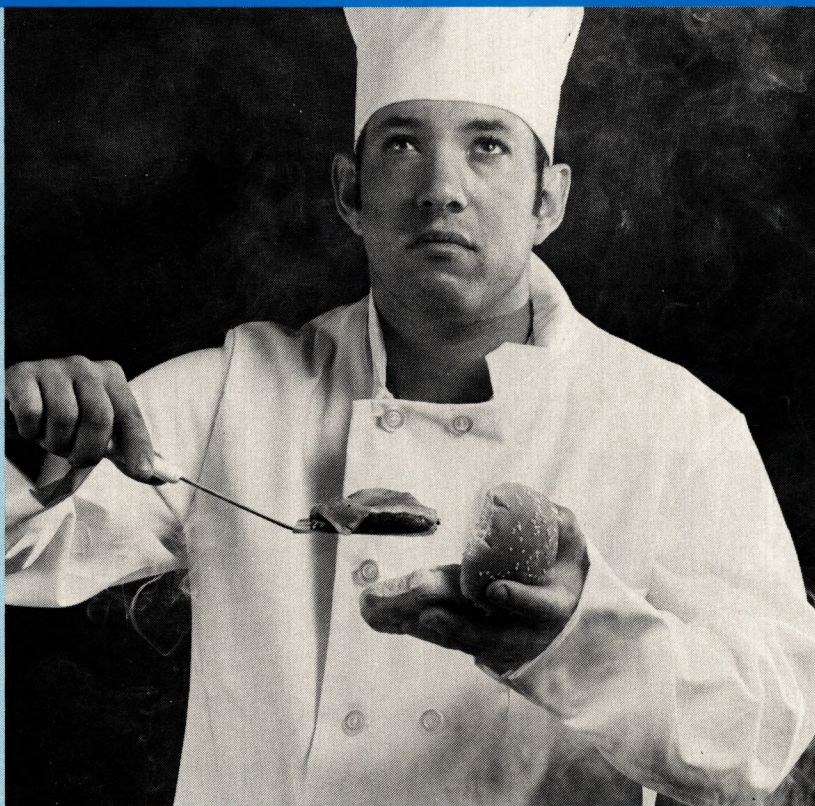
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GOURMET LOBSTER

type of pasta you may be cooking as well.) Also, remove the lobster from the pot as soon as it is cooked and run cold water over the entire body for at least two or three minutes. If this isn't done and the lobster is just left sitting, it will continue to cook and may become too well done. The cooking times listed below have worked well for me. If your times vary but work well, stick with them.

¾-1¼ lb. — 10-12 minutes

1½-2 lb. — 15-17 minutes

2½-5 lb. — 22-25 minutes

6-10 lb. — 28-32 minutes

If you consider it cruel to put a live lobster into boiling water, an easy way to kill it beforehand is to plunge the point of a knife into the head between the eyes. This will kill it instantly.

LOBSTER SALAD

1 C lobster meat, cooked & chilled

1 T mayonnaise

Paprika

Lettuce

Cut the lobster into small pieces. Add one tablespoon of mayonnaise. Mix thoroughly and chill. Place on crisp lettuce leaves and sprinkle with paprika. You can also add chopped red or green peppers or fresh dill.

LOBSTER COCKTAIL

¼ C lobster meat, cooked

2 T ketchup

2 T sherry

1 T lemon juice

Tabasco sauce to taste

Cut lobster meat in pieces. Blend with rest of ingredients. Chill and serve in cocktail glasses.

By paying careful attention to minor cooking details you will be well on your way toward becoming a lobster gourmet. While boiling this most delectable of all delicacies you can also add various things to the water. One of my favorites—by far—is dry white wine. I find a 50/50 mixture of wine/water seems to work well (Note: Use the cheap stuff and save the good ones for dinner!) Also, remember it's not necessary to use a pot the size of a bathtub. A pot just big enough to hold the lobster and about three or four inches of water is sufficient. This will also save you a little wine.

Another way to enhance the lobster's flavor is to add beer. I find that almost a full bottle is sufficient. Notice I said "almost." Whenever I open a bottle for the pot, be it beer or wine, I feel it's my duty

to taste it and make sure it's OK. We wouldn't want to spoil the lobster!

I also like adding lemon, butter or both when cooking. These are always good for bringing out the flavor.

What makes cooking lobster fun is experimentation. Try adding all kinds of good things. Be creative: Don't worry about pre-conceived notions or what goes with what—follow your instincts. The next thing I want to try is sliced apple. I have high hopes for this one.

I like my lobster dipped in melted butter or with a little lemon squeezed on it. If you want a little more zest, here's a simple recipe for a nice cocktail sauce.

1 C ketchup
2 T fresh lemon juice
1 T horseradish, or to taste
Tabasco sauce to taste
Serve ice cold on a chilled dish.

If you've been lucky enough to get more lobster than you can eat at one time, lobster salad or lobster cocktail are good ideas. I've included recipes for them in this article.

What I've tried to show is that lobster can be cooked in different ways without hiding its unmistakable flavor. Experiment, add a little of this and a little of that—in moderation please—until you find that perfect combination. Enjoy! 🍷

ATOCHA TREASURE

(Continued from Page 29)

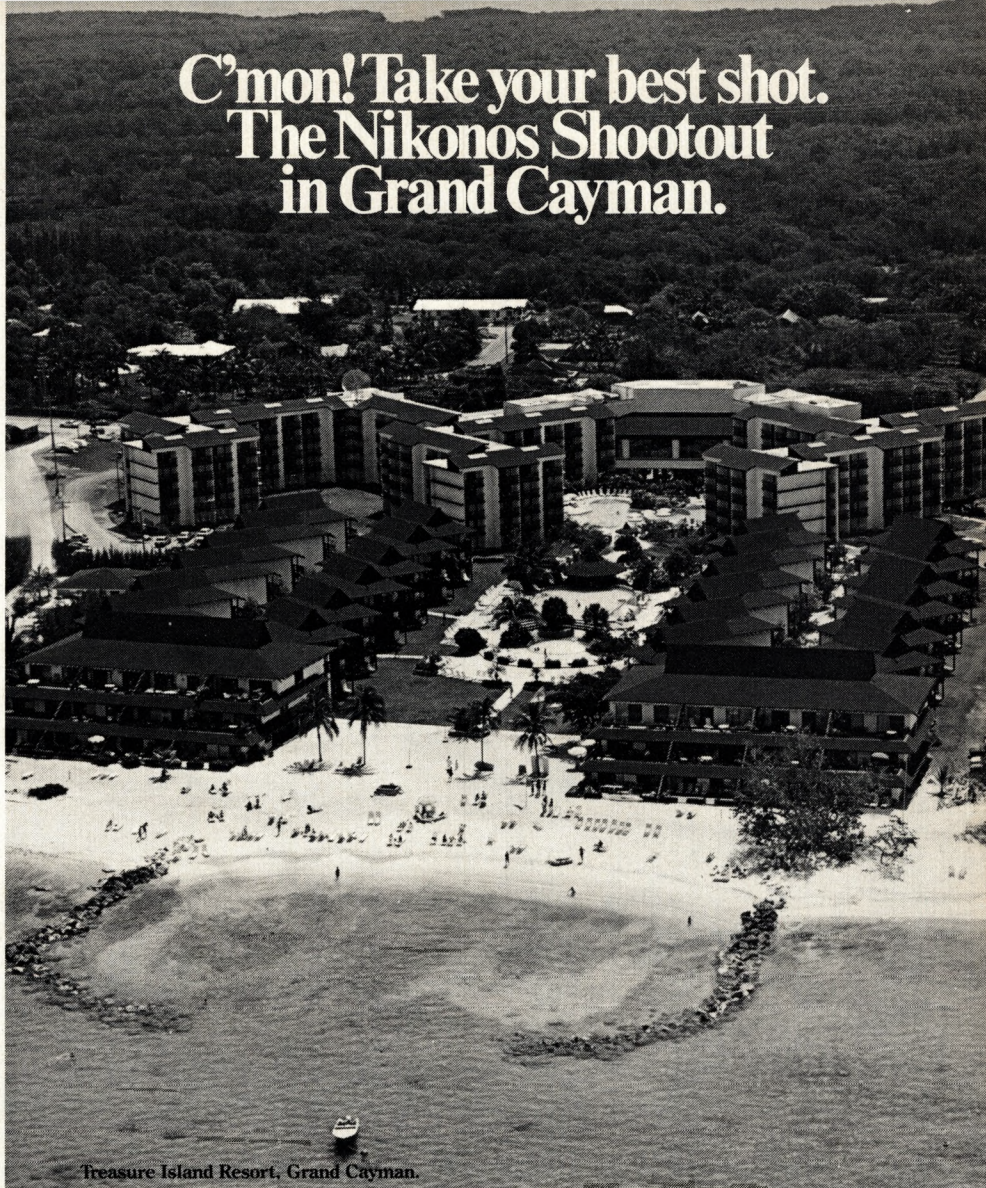
Cancer Research Fund of Dallas. By the time you read this, sales or sales/benefits will have been held in Kansas City, Nashville and another Texas town.



This 22.58 carat emerald, held by Columbus Industry's Fred Holabird, sold for \$65,000. The gem is hexagonal in shape.

This spring there will be a large national traveling exhibit. Historical Treasure Management's Jim Willsey estimates it will take eight tractor-trailers to cart the artifacts from city to city. Items from the exhibit will be for sale. In fact, anyone interested in buying *Atocha* artifacts can contact Jim Willsey at Historical Treasure Management, P.O. Box 1628, Key West, Florida 33041; (305) 296-6533. You, too, could own treasure from the *Atocha*: Treasure that was lost on the bottom of the ocean for more than 300 years! 🍷

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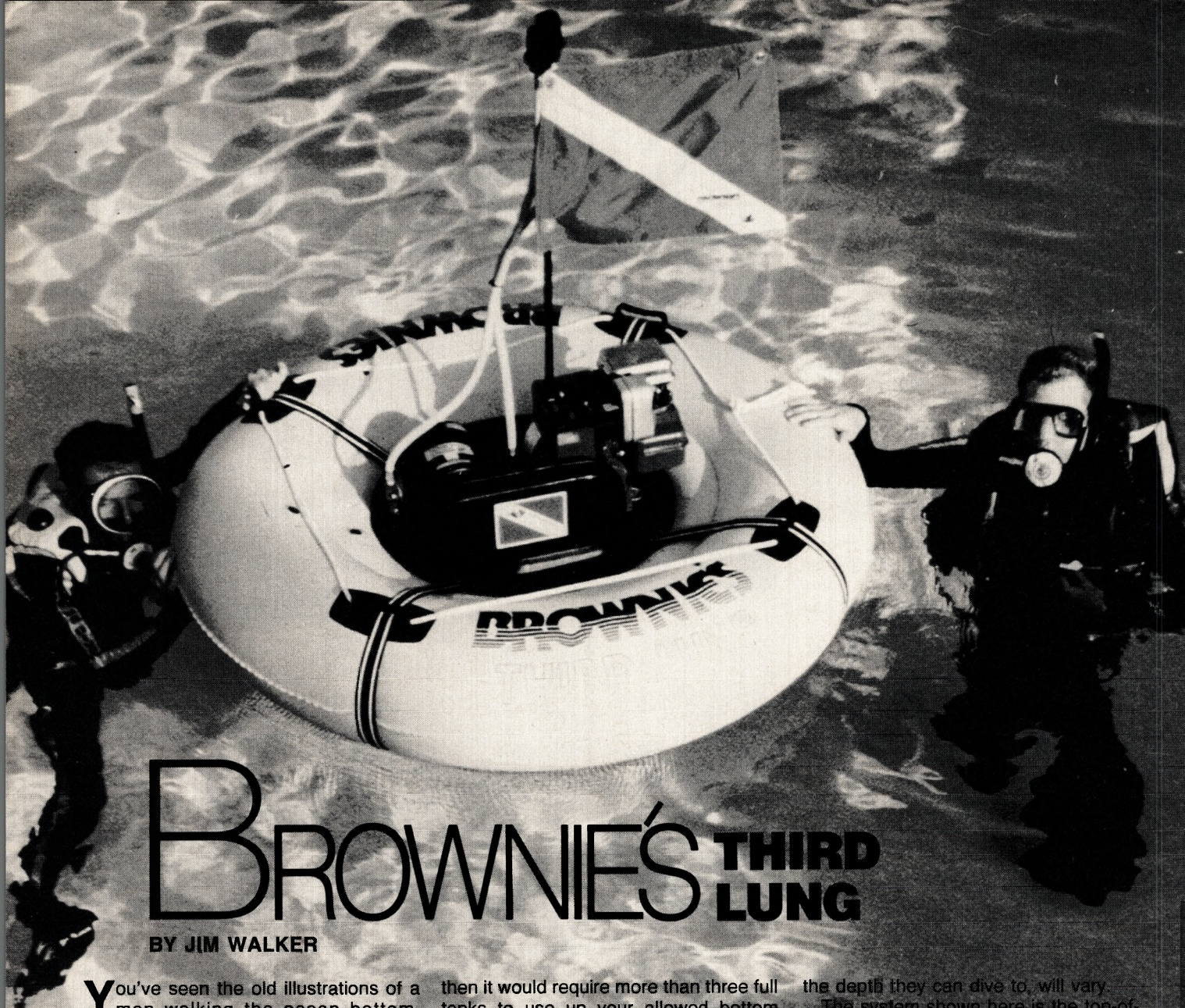
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SKIN DIVER JANUARY 1988 37



BROWNIE'S THIRD LUNG

BY JIM WALKER

You've seen the old illustrations of a man walking the ocean bottom, wearing a leather hood with a super long snorkel. Well, the historic armchair scientists who drew such pictures were headed in the right direction. They just didn't understand the physical forces involved. Think of it: a simple device piping air from the surface and thereby allowing you nearly unlimited time underwater in shallow depths! Brownie's Third Lung takes that historic idea and makes it easily workable.

Brownie's Third Lung is a hookah system. And, while hookah diving certainly isn't new, the Brownie's system eliminates the bulk, hassle and expense of its ancestors. It's lightweight, portable, floatable and perfect for such shallow water activities as pool cleaning, lobster hunting, small boat hull cleaning, searching for treasure or gold dredging.

Consider: Even conservative diving tables allow a 30 foot deep dive for 215 minutes. Guestimating a full scuba tank would last about an hour at that depth,

then it would require more than three full tanks to use up your allowed bottom time. The Brownie's system shown on these pages will provide breathing air for three hours of uninterrupted diving—for two divers! Then all you need do is fill the gas tank and your air supply is ready again. And, even if you don't want to stay down that long, while you are underwater you will be diving without a bulky scuba tank and won't need to worry about checking a pressure gauge. You can concentrate on your work or play.

The Brownie's system has three major components: an engine/compressor, air hose(s) and regulator second stage(s). The engine/compressor can be operated aboard a boat, on a dock or, as shown, strapped to a special float. Several versions of the system are available, powered by gas engines, 110 volt AC or 12 volt DC electric motors. These offer compressor outputs ranging from 1.0 cubic foot per minute at 45 psi to 3.7 cubic foot per minute at 60 psi. One float for two divers a system will provide air for, and

the depth they can dive to, will vary.

The system shown here is the top-of-the-line Model 20-F. It features a three horsepower Briggs & Stratton gasoline engine (industrial/commercial version) driving an oil-less double head compressor, providing 3.7 cubic feet of air per minute at 60 psi. It will provide breathing air for two divers down to a depth of 50 feet or three divers to 25 feet. The breathing air intake filters are held high above the engine on a stand that doubles as a mast for a divers down flag. In this way engine exhaust is prevented from entering the breathing system. The engine features sealed ignition (five year warranty) so water won't short it out. You can even rinse the engine while it's running. A five foot long heat dissipation hose attaches to the compressor output valve with a snap fitting. The diver hose(s) then attaches to the short hose.

The 20-F comes with two 60 foot, nylon reinforced air hoses. These float to reduce the chance of snagging on underwater obstacles. On a straight hook-

photo/Boa Akeson

up one hose will supply one diver, or both hoses can be used at the same time (two divers) via the Y-fitting provided. The 20-F also comes with two Sherwood regulator second stages (made exclusively for Brownie's) on 36 inch hoses with swivel fittings. The regulator hoses attach to the diver air hoses with special brass fittings. Brass loops are attached to these fittings. Two nylon webbing belts are also provided with the system. Each of these has a brass snap clip attached. These clips snap into the loops on the hose fittings. In this way any resistance to the diver's motion is transmitted to the belt and not (via the regulator mouthpiece) to the diver's teeth. If necessary, the diver can detach the hose from his/her belt quickly.

The engine/compressor is bolted to a 25 inch diameter, hand laid fiberglass dish. For use as a floating system, the dish/engine/compressor is set in the center of a 50 inch diameter float and secured there by four plastic straps.

The float has four convenient carrying handles built-in. A braided fabric line encircles the top of the float and passes through each of the handles. Thus, the float is easy to carry and provides an easy-to-hold-onto resting place at the water's surface. The float is made of rugged PVC and has a two part construction—a smaller inner ring and a larger outer ring. These have self closing inflation valves and are completely separate. With a nipple fitting (provided) attached to the compressor's heat dissipation hose, you can inflate the float in a couple of minutes.

The 20-F comes with an easy to understand operations manual as well as a separate engine manual. These discuss capabilities, set-up, operation and care of the system, but a few points should be emphasized. (1) You must be scuba certified to use this system. The same principles that apply to scuba apply to hookah. (2) Never run the engine in an enclosed area and always orient it so its exhaust points down wind. The floating units automatically compensate for changes in wind direction. (3) Brownie's recommends that, unless you carry a separate emergency air supply, never use the system in a situation where you can't make a comfortable free ascent if the compressor should cease functioning. Such no-no situations include diving in shipwrecks, caves or under overhangs. (4) Never dive alone. Additionally, it might be a good idea, whenever possible, to have someone topside to keep an eye on the engine, watch for boats, watch for changing weather/wave conditions, etc.

The 20-F Brownie's Third Lung is \$1,440. A third diver set-up is \$150. The handling weight of the compressor/engine is only 55 pounds and the entire system will pack in a 26 x 26 x 16 inch box. For more information on the 20-F or other Brownie's systems, contact Brownie's Third Lung, 940 NW 1st Street, Ft. Lauderdale, FL 33311; (800) 327-0412 or (305) 462-5570 (in Florida).

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WRECK FACTS

(Continued from Page 16)

where he operates Sea Center at Mile Marker 29.5. Joyner used to do a lot of diving on Florida's west coast before he moved to the Keys. His recollections of diving a 400 foot long grain cargo ship called the *Bayrongo* were very interesting. "She was 30 miles due west of Boca Grand," Don recalled, "lying upside down about 110 feet deep. She went down in 1919 when the ship took on water, the grain swelled and her seams split. Although the wreck is broken in half—her bow pointing north—the stern is still there in that same general area."

Commercial fishing friends put Don on the wreck in the early 1970s when only a few divers knew about it. It was a haven for jewfish, barracudas and amberjacks and the currents weren't too bad. The 13 foot prop had been salvaged by a commercial diver, but some portholes were still intact. Don salvaged a porthole and parts of the telegraph and later researched the ship from part of her name, which appeared on the bow. Divers can obtain information about the wreck and others on Florida's west coast and in the Keys by writing to Don or stopping to see him at Sea Center, Mile Marker 29.5, U.S. One, Big Pine Key, Florida 33043.

Polly Gardnier, Portland, Oregon sent an interesting article about Oregon shipwrecks. Diver Mike Monteith revealed that gillnetter Daryl Hughes snagged his nets on a very old shipwreck, not a submerged tree stump as Hughes originally reported. Larry Gilmore, curator of the Columbia River Maritime Museum in Astoria, identified the wreck as the *Isabella*, an 1830 Hudson's Bay brig that ran aground and later sank in the Columbia River's shallows. The 195 ton wooden ship was headed up river to Fort Vancouver—regional headquarters for the Hudson's Bay company—with annual provisions of food, cooking supplies and trading goods. The captain mistook Chinook Point for Cape Disappointment and ran the vessel aground.

Monteith has made dozens of dives in murky, 30 foot depths to map and grid the remains of the *Isabella*, which historians say is the oldest wreck ever discovered at the river's mouth. The remains of the oldest known wreck, another British vessel from the Hudson's Bay Company called the *William Ann*, sunk in 1829, have never been found. More than 200 ships have sunk near the river's mouth since 1792, the year Captain Robert Gray became the first white man to sail into the river. Astoria author Don Marshall recounts the mystery, romance and sadness of many of these wrecks in his book, *Oregon Shipwrecks*.

George Eichelberger, Hockessin, Delaware sends information about every North Carolinian's favorite pirate, Edward Teach, better known as Blackbeard. Diver Mark Wilde-Ramsing uncovered an old sailing ship in the shallow water of Teach's Cove, where the notorious pirate repaired his ships in the 18th century. *Teredo* worms had attacked the wood, which was buried under two feet of mud. Wilde-Ramsing estimated the vessel to be about 100 feet long, with a beam of 25 feet and a draft of 8-12 feet. The discovery was made in Green Creek, part of Teach's Cove that commands a view of the Neuse River, five miles wide at the town of Oriental. This would have provided a perfect sheltered spot for pirate ships to swoop out and attack river traffic and vessels heading into Pamlico Sound.

Teach is painted in local legend as a merciless sea robber who struck terror into the hearts of victims and crewmen alike. It is said he twisted his long black beard into snakelike strings and then tied them behind his ears to appear even more ferocious. During one of his attacks on a merchant ship, he was supposed to have captured a princess. Deeming it unwise to take her home, he dropped the princess off in Oriental, intending to return at a later date. Before he made it back, he was captured and beheaded at Ocracoke in 1718. As for his various treasure caches, Blackbeard best sum-

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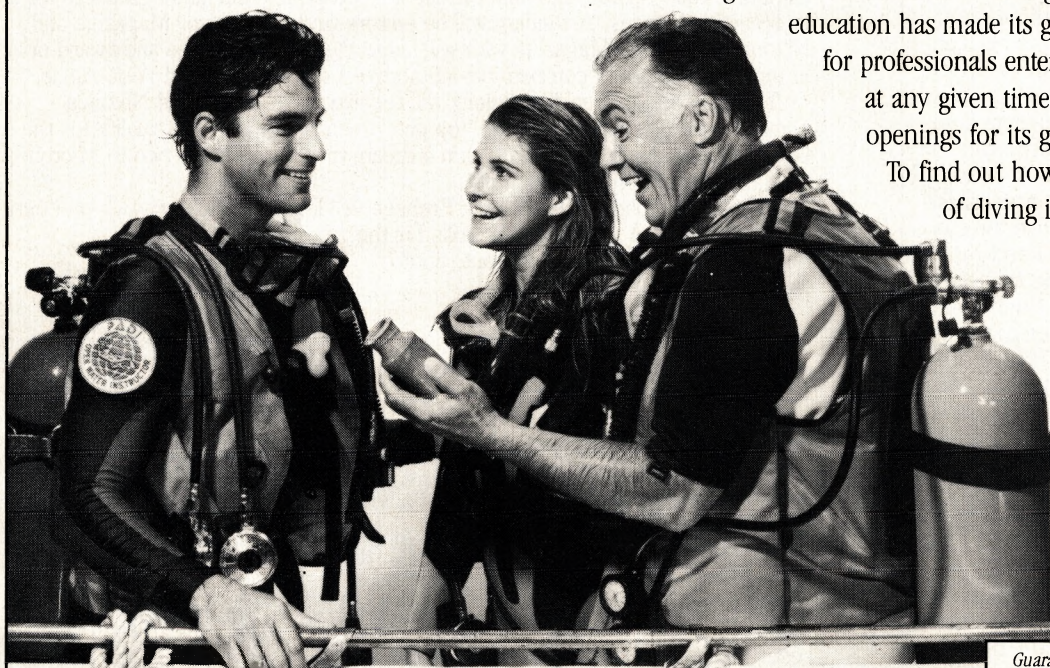
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med up their locations when he bellowed, "Nobody but me and the devil knows where it is—and may the longest liver také it all!"

Great Lakes divers might be interested in two new publications, one about Lake Michigan and the other about Lake Superior. Gary Arlov has put together a practical little book *Diver's Guide to the Shipwrecks of Lake Michigan*. The 38 page paperback is a product of nine years of diving and research by the author, who lists 77 wrecks for the weekend diver. Arlov lists locations, cargoes, depths, tonnages, builders, types of ships and Loran numbers. The book may be ordered from Gary Arlov, P.O. Box 19810, Milwaukee, Wisconsin 53219. The price is \$10.95 including postage.

Paul Hayden, editor of Lake Superior Magazine, is enthused about a 100 page paperback including articles contributed by Fred Stonehouse, Pat Labadie, Ken Vrana, Julius Wolff, Thom Holden and Paul Von Goertz. Fourteen chapters cover wrecks such as the *Thomas Wilson*, *Arthur M. Anderson*, *Edmund Fitzgerald*, *Gunilda*, *Madiera*, *Emperor* and others, all vividly described and illustrated by black and white and color photos. James Marshall did a fine job of editing the book and writing a preface that motivates readers to delve into the shipwreck tragedies of the lake. The book is available from Lake Superior Magazine, 325 Lake Avenue South, Duluth, MN 55802. The price is \$11.95 plus \$2 postage and shipping.

The coast of central New Jersey is a popular area for eastern wreck divers. Bill Davis, who has explored this area for nearly ten years, has written *Shipwrecks Off the Central New Jersey Coast*—about vessels that sank between the Shark River and Barnegat Inlet. Eighty-eight pages of text, accompanied by 60 photos, illustrations and maps detail 46 sunken ships. An appendix lists approximately 600 additional vessels that went down in this area. The book may be purchased from Bill Davis, P.O. Box 392, Seaside Heights, NJ 08751. The price is \$8.95 plus \$1 postage.

Safe to dive to all. Be sure to include a stamped, self-addressed envelope when writing: Ellsworth Boyd, 1120 Bernoudy Rd., White Hall, MD 21161. ✉

DIVER'S NOTE PADS

F & R Studios, a custom design house, is now offering a line of diver's note pads. Drawn by a professional illustrator/diver, they are complete in every detail. The designs depict a man and woman ascending on a line toward a flag/float; a buddy team on a wall dive and one with a diver navigating out of the face of a waterfall!

The pads contain 50 sheets and have a suggested retail price of \$4.95 each. They are available at professional diving facilities or from F & R Studios, 4001 W. Devon Avenue, Suite 211, Chicago, IL 60646. ✉

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Casa Del Mar, Cozumel.

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Remember when you first learned to dive? Everything was new and exciting. You wished you could stay down forever. You probably thought it would be great to be able to make your living in diving. If you're still hanging onto that dream, there's no better time than now to make it come true. Sport diving is undergoing a rapid expansion. According to Bob Gray, executive director of DEMA (Diving Equipment Manufacturers Association), sales of scuba gear increased 8 percent in 1985, 10 percent in 1986 and 18 percent in 1987. This is just one indication that a lot of people are taking up diving. Qualified instructors are needed to teach it to the new generation of fitness and adventure oriented individuals entering the recreational marketplace. Could you be the one to do that job? Do you have the ability to develop the skills necessary to communicate your enthusiasm and love for your sport to new students? Just as diving is no longer the "macho" sport it once was, dive instructors are no longer required to be supermen or women. To find out just what it takes to be a modern diving instructor, and what the opportunities are, I went to the Days Inn Lauderdale Surf Hotel in Ft. Lauderdale, Florida to speak with Dave Inman, president of Divers Unlimited. DU is the largest instructor training facility in the eastern half of the United States.

Divers Unlimited, a PADI Five Star Training Facility, has been training divers for 17 years and instructors for 14. The company's headquarters and retail outlet are in Hollywood, Florida, but the instructor institute is in Ft. Lauderdale. There the instructor candidates are housed in a beachfront hotel with the ocean, the boat docks and the olympic sized 18 foot deep Swimming Hall of Fame pool all within an easy walk of the classrooms. The institute is only a short drive from the Ft. Lauderdale International Airport, so candidates don't even need a car.

"What *do* the candidates need?" I asked Inman. "The biggest thing," he answered, "is the correct attitude and willingness to learn." The physical aspect of training is no longer stressed, he explained. Candidates do not need any academic background, nor do they need to be in exceptional physical condition. The days of grueling swim tests are over. "That has nothing to do with teaching someone how to teach diving," said Inman. "Our programs are designed to produce an educator. Over the years a tried and proven program has been developed to teach diving. What we do is teach them that system." The failure rate in the instructor courses at Divers Unlimited, according to Inman, is under two percent compared with a national average of 12 percent.

Candidates divide their time about equally between classroom, pool and

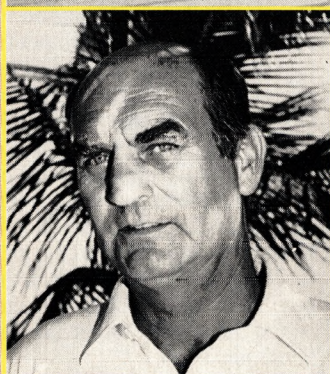
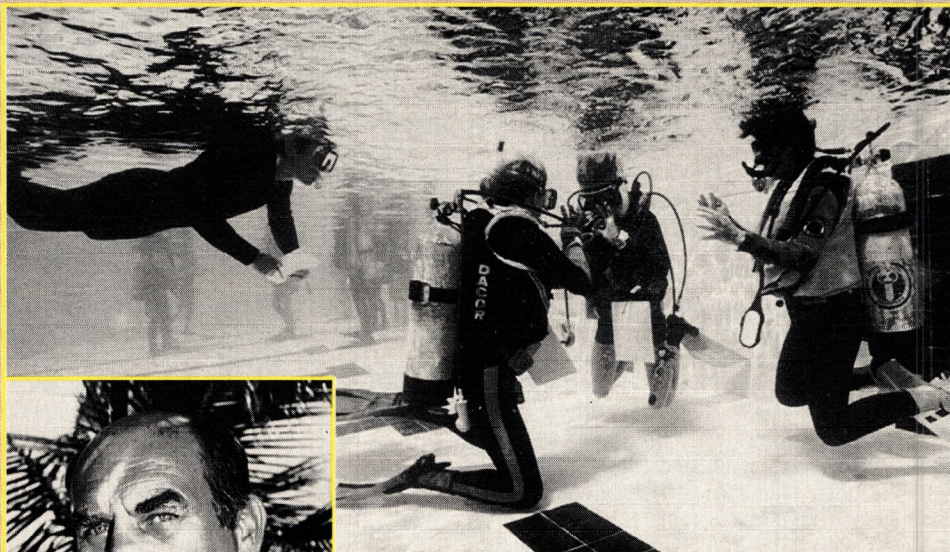
open water. Open water training is done on the reefs and wrecks of Ft. Lauderdale, home of the *Mercedes*, the world's most famous artificial reef shipwreck, where the warm waters of the Gulf Stream nurture an abundance of tropical and sub-tropical marine life. Candidates spend about eight hours a day in training. The 12-14 hour per day courses are a thing of the past. The ultimate goal, said Inman, is to "prepare the individual to go out into the real world and begin to teach and be productive."

many resort destinations include room and board or other perks. "Right now," said Inman, "the emphasis is on the Caribbean. Most of the major operators in the Caribbean and Hawaii are looking for employees." As if to underscore the hungry market for resort diving instructors, our one-half day interview was interrupted not once, but twice by owners of Caribbean dive operations who had come by to beg Dave for employees. I took the opportunity to detain one of them, Rick Wright, owner of a scuba div-

TEXT AND PHOTOGRAPHY BY DOUG PERRINE

DIVERS UNLIMITED COLLEGE

LARGEST INSTRUCTOR TRAINING FACILITY ON THE FLORIDA COAST



Left: Divers Unlimited president Dave Inman. Above: Instructor trainer Steve Dazet supervises pool training. Divers Unlimited is the largest instructor training facility in the eastern half of the United States and has been training divers for 17 years—instructors for 14.

Just what are the opportunities in the "real world?" Divers Unlimited offers a free placement service for its instructors. Inman says he now has more than 400 openings—more jobs than candidates. Salaries are highly variable, but the range for entry-level instructors is approximately \$10,000 to \$25,000 a year. Salaries are not directly comparable because

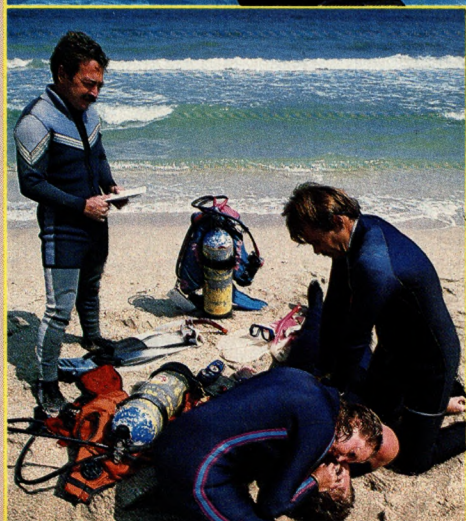
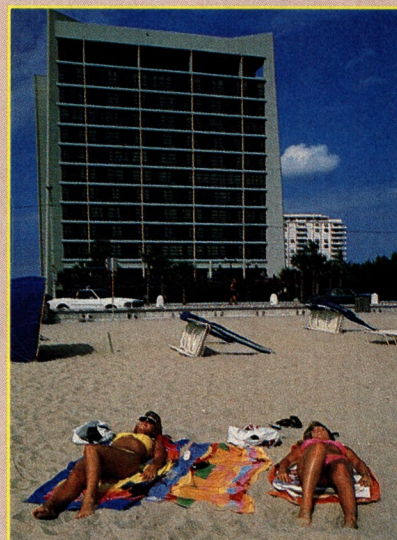
ing operation in Antigua, West Indies, and ask him why he had come to Divers Unlimited to hire an instructor.

It turned out that Wright himself was a graduate of Divers Unlimited. "I was originally involved with the BSAC (British Sub-Aqua Club) and instructing on a non-professional basis. I wanted to get into it

(Continued on Page 152)



Left: Divers Unlimited open water training is done on the reefs and wrecks of Ft. Lauderdale, home of the *Mercedes*. Below: Classes are held at the Days Inn Lauderdale Surf hotel on the beach in Ft. Lauderdale.



Above: An instructor critiques candidates' performance during a pool session. Left: Training director Wayne Demoruelle supervises a simulated rescue. Divers Unlimited instructor candidates divide their time about equally among classroom, pool and open water. Divers Unlimited's headquarters and retail outlet is in Hollywood, Florida, but the instructor institute is in Ft. Lauderdale.

Technifacts

BY E.R. CROSS



Underwater parks, preserves, historical sites and the like have been with divers for many years. For just as many years the laws and acts promulgating these have caused friction between divers and those against diving. However, at least one system of U/W preserves seems to be working.

Nicholas K. Fon Eisen, Hyde Park, Vermont wrote, "It would be nice to see an article on the State of Vermont Underwater Historic Preserves in SKIN DIVER Magazine. Enclosed is a brochure describing our preserves." Since the system has been in effect for 12 years, and appears to be diver useful, some salient features of the act are quoted as of possible interest to the sport diving population.

The brochure is published and distributed by the State of Vermont, Division of

Historic Preservation, Agency of Development and Community Affairs, Pavilion Building, Montpelier, VT 05602, and is titled Underwater Historic Preserve—Diving Guidelines and General Information. It defines a preserve as an underwater historic site that has been designated a protected area of historic and recreational interest to divers.

In 1975 the State of Vermont passed its Historic Preservation Act, which stipulated that all underwater historic sites beneath state waters belong to the State of Vermont in public trust. The act appears to be an attempt to actually manage the wreck sites rather than one of arrogation.

Controversial and sometimes litigious attempts at controlling underwater shipwreck sites by federal and state governments have frequently been in the news

and in the courts. Some points to remember are that laws or acts are supposedly passed for the benefit of some or all of a population and, frequently, to protect individuals from their own actions or the actions of others. Secondly, no law or act ever passed gave anything to any person or group of persons in excess of what they already had. By their very nature they take away or are restrictive. It is debatable whether anyone would benefit from some of the acts or laws that have been proposed to preserve(?) underwater sites.

The brochure mentioned earlier goes on to say, "The state's responsibility is to protect, wisely manage and interpret this public heritage. Establishing a preserve is one way to accomplish these goals by

(Continued on Page 48)

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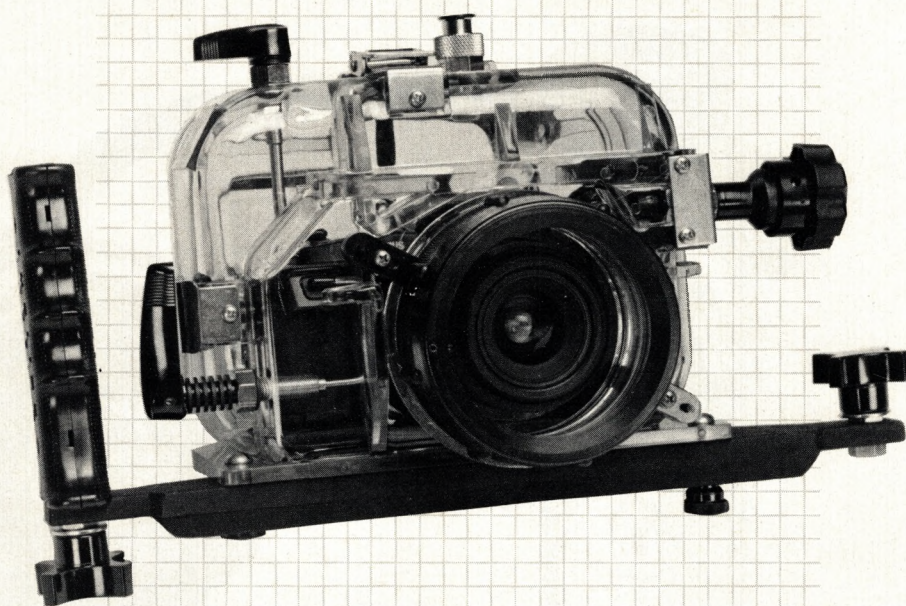
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SDM SPECIAL SERIES ON REGULATORS

MR12-IV



MARES REGULATOR MR12-IV

TEXT AND PHOTOGRAPHY
BY ERIC HANAUER

Where were you in 1966? LBJ was in the White House and things were heating up in Viet Nam. The Beatles were topping the charts and go-go dancing was hot. Ford's Mustang was at the top of the most wanted list among car enthusiasts. Scuba divers were just beginning to accept "safety vests" as standard equipment. It was then AMF Voit introduced its new regulator, the MR12.

Over the past 22 years the face of our nation has changed significantly. Very few products introduced that long ago are still around. The Mustang is, but its 1988 version wouldn't be recognized by someone who had been asleep for two decades. The same can be said about the fourth version of the MR12 regulator. Its name has survived even though its original company is no longer in the diving business. But, although the new MR12-IV pays homage to a grand old name, it bears little physical resemblance to its ancestor. That's good, because regulator design has advanced as significantly as car design since the '60s. Like the Mustang automobile, the name is the same but the product is different.

The original MR12 was one of the most respected regulators of its day and, for awhile, was the only one approved for use by the United States Navy. The second version, introduced in 1975, featured a bypass tube in the second stage for vortex assisted breathing. Voit's diving division was sold to Mares of Rapallo, Italy in 1982, and regulator production was moved over there. The MR12-III, introduced at that time, had a new swivel first stage that could be converted to DIN fittings, as well as a plastic cover on the second stage.

The latest version of the MR12 is the result of collaboration between the Mares factory in Italy and its exclusive American distributor, SeaQuest of Carlsbad, California. This is because many products designed in Europe for our market haven't made it over here. A SeaQuest spokesman explained, "The American diver is more demanding, so we work closely with Mares in all development."

A key member of the design team is engineer Bill Oliver. He was responsible for the MR12-II's vortex assisted breathing system, receiving a patent for it in 1975. Since this feature is what

makes the Mares' regulator unique, we asked him to explain it. According to Oliver, it is essentially a power assist for breathing, similar to a venturi, but different in some important ways. In a venturi, a fast moving mass of air passing through a small orifice creates a partial vacuum behind it, which sucks in the diaphragm and opens the second stage poppet farther. The aiming of the venturi airstream is critical, requiring baffles and vanes within the second stage housing. Slight variations from manufacturing tolerances can adversely affect the venturi action.

In the MR12-II, a small tube bypasses the control area and delivers air directly into the mouthpiece. This prevents stray air jets from hitting the back of the diaphragm and working against it, as could happen in a poorly focused venturi system. The tube also imparts a swirling effect to the airflow, similar to a miniature hurricane or tornado. The core of the vortex is a low pressure area. The faster its spin (as in a hard inhalation), the greater the drop in pressure. Air is pulled out of the case by the vortex, which depresses the diaphragm farther, resulting in more airflow from the intermedi-

ate stage.

So what is the main advantage of the vortex assist over a venturi? Oliver explained that a venturi is hard to control, while a vortex is controllable and predictable. Variances in performance among units in a given production run are narrowed. This enhances reliability and simplifies tuning. It also stops uncontrolled freeflow.

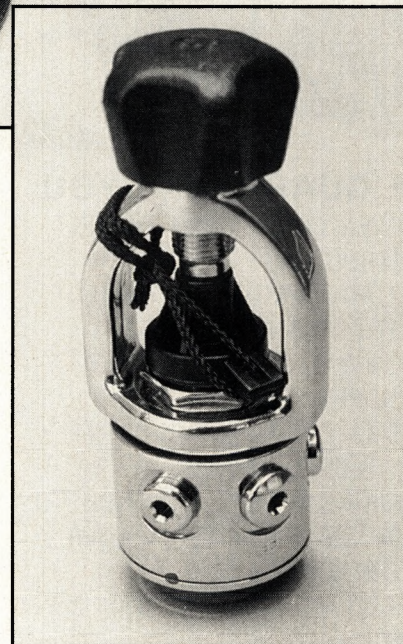
In the MR12-IV, the diameter of the bypass tube has been enlarged and it has been moved upstream of the poppet to provide higher peak flow with lower inhalation resistance. More precise positioning of the tube is allowed by the new molded second stage case, now made entirely of plastic. SeaQuest calls the material "... a high grade technipolymer ... filled with fiberglass as a reinforcing agent." The resulting product is extremely lightweight, durable and corrosion resistant.

A larger silicone exhaust valve makes it easier to clear the second stage. This valve is supported by a concentric ring molded into the port, allowing the use of a soft valve for low exhalation resistance. The ring prevents the valve from collapsing inward and causing water leakage.

A system of vents on the backside



Above: The MR12-IV second stage has a small bypass tube, silicone exhaust valve and a specially molded plastic case. Right: The first stage is the same as that of the MR12-III.



MR12-IV

First stage:

Type.....Balanced diaphragm
Maximum pressure3,000 psi
(with yoke)
Materials.....Chrome plated
brass body
Elastomeric seat
Nylon reinforced
neoprene diaphragm
High pressure portsOne, 1/8"
Low pressure portsFour, 3/16"
Intermediate pressure.....150 psi
Environmental protection .Optional
Special feature.....DIN or
yoke attachment

Hose length29"

Second stage:

TypeDownstream, lever action
Materials.....Case and cover
fiberglass filled plastic
Silicone diaphragm, exhaust
valve, exhaust tee
Neoprene seat
Special feature.....Bypass tube for
vortex assist
ColorDark gray
Trim available in red, fuchsia,
yellow or blue

WarrantyLimited lifetime
Price.....\$330

of the purge button assembly keeps water from hitting the diaphragm directly when diving in strong currents or with an underwater vehicle. This prevents unwanted freeflow in those conditions. Although the second stage comes only in dark gray (including the silicone mouthpiece and exhaust valve), the trim on the purge button and the cover ring can be had in red, fuchsia, yellow or royal blue.

The first stage was extensively revised in 1982 and continues unchanged. It is a balanced diaphragm design with an intermediate pressure of 150 psi. There are four low pressure ports and one high pressure port, along with a swivel yoke. As is the case with many European regulators, the yoke can be removed to allow attachment to the German DIN tank valves without an adapter. Its high pressure seat is made of a proprietary elastomeric compound that resists taking a set. An environmental kit is available for diving in freezing or polluted waters.

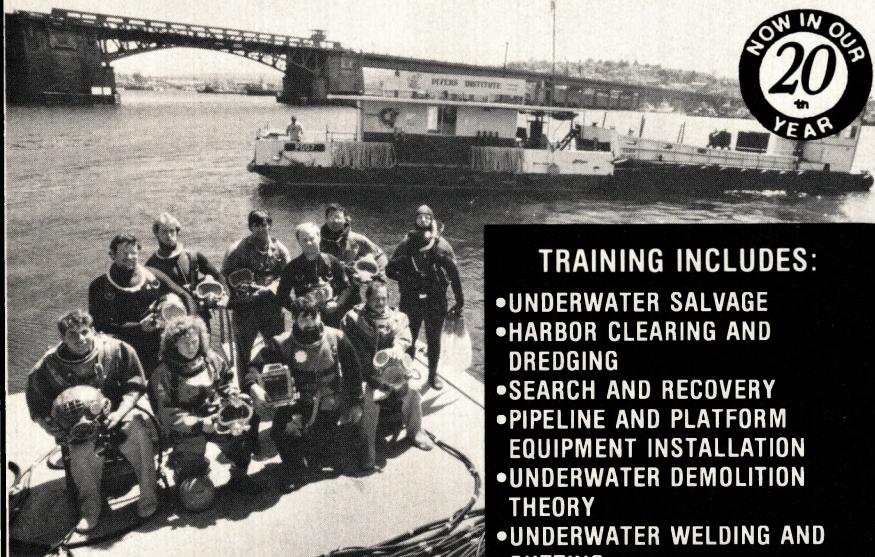
We tested the MR12-IV during an unusual autumn rainstorm off the coast of San Diego, California. But, the swell wasn't bad and underwater

visibility on the wreck of *El Rey* was 30 feet, despite the dark sky and the plankton bloom in shallow water. Unfortunately, regulator tests leave little time for sightseeing, so my buddy explored the wreck while I ran my procedures on Mares' latest.

Overall, this is a calm, competent regulator that offers few surprises. It breathed dry in all positions, including head down and on my back. Although breathing effort increased when I was on my back (as it does in most conventional regulators), the MR12-IV is one of the few that doesn't leak water in that position.

Slowly sipping air felt smooth, with
(Continued on Page 58)

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TECHNIFACTS

(Continued from Page 44)

making it easy for you to safely locate historic wreck sites, by protecting the wrecks from accidental anchor damage and by helping you to better understand the life and story of each wreck. A separate brochure is available for each of three wrecks from Vermont's Division of Historic Preservation at the address given previously. Write for them.

U.S. Coast Guard approved mooring buoys are maintained at each wreck site to aid divers in locating the wrecks, to protect the wreck from damage by anchors and to serve as moorings for diving vessels. These buoys are marked "Underwater Historic Preserve" and are at the wrecks of the *General Butler*, the Coal Barge in Burlington Bay and the *Phoenix*, off Colchester Point.

From each buoy a chain leads to a concrete anchor pad. From the pad a line leads past information signs and, eventually, to the wreck. Anyone diving these wrecks must moor his/her boat to a buoy. Only one boat is allowed to moor at a time. Buoys are designed for boats up to 35 feet in length and can only be used in fair weather.

Divers are prohibited from penetrating the wrecks or removing any parts of them or any article of any kind from the wrecks. By law, once a boat is moored to a buoy and diving is about to commence, the boat must fly both the divers down and Alpha flags. Boats can remain tied to a buoy only during the dive. Pre and post-dive briefings must be done off the buoys. No overnight mooring to the buoys is permitted. Boats are not to anchor within 200 feet of a buoy.

The brochures outlining the rules and regulations for diving the historical sites warn about Lake Champlain weather and cold water. The diving guidelines also provide recommendations for diving the sites, suggesting divers descend on the buoy chain to the anchor pad, thence along the line leading to the wreck, and to keep the wreck itself in sight at all times. Lines from the mooring buoys are lettered A, B, C, etc. Divers are cautioned to note the designation of the line on which they descend and to ascend on the same one.

An examination of the chart for Burlington Harbor and vicinity indicates the wrecks are at depths ranging from about 50 to nearly 100 feet. The same chart indicates the location of a sewer outfall system emptying into Burlington Bay. Fon Eisen advised in his letter, "Until such time as the sewage system in Burlington is fixed, divers should first check to be sure the beaches are open before attempting to dive these areas. The beaches were closed at least three times

this (1987) summer owing to pollution."

The *General Butler* and the Coal Barge are in Burlington Bay and subjected to pollution from the outfall. The *Phoenix* is well away from the bay and not as likely to be polluted. When pollution from outfalls is present on beaches or on the surface of the water, it is probable that worse pollution will exist underwater near the bottom. Most, possibly the most harmful, effluent does not float.

There is an alternate dive site in the Burlington area, as described by Fon Eisen: "The Dolphins is at Oak Ledge Park and is frequently dived by training classes as it offers a fairly easy dive." This site is usually free of pollutants.

Technifacts will welcome letters from readers who have had experience diving the Lake Champlain area and, particularly, the underwater preserves. Also welcome would be information from divers who have experienced preserve-like dive sites in other states and other countries. Were fees charged? Do they work to the advantage of sport divers or to anyone else? Are the restrictive regulations needed? What are your thoughts on U/W preserves in general? Are such sites needed? Is wreck protection needed? Why?

ABOUT THE LOST JOURNAL

Some months ago a reader wrote asking for the address of The International Journal of Nautical Archaeology and Underwater Exploration. Technifacts asked readers for help. Thanks to Martin Klein, President, Klein Associates, Inc., Klein Drive, Salem, New Hampshire 03079 and Alvin Golden, Chartered Financial Consultant, 88 Rockway Avenue, Valley Stream, NY 11580, we can now share information on the publication.

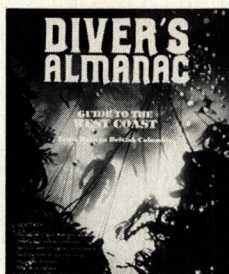
The journal is published quarterly in England by Academic Press, Inc. The society's membership secretary, to whom all inquiries regarding subscriptions should be sent, is Mrs. Wendy Robinson, 28 Collard Road, Willesborough, Ashford, Kent, TN24 0JR, England. This is the publication of the Council for Nautical Archaeology, a main sub-committee of the Council for British Archaeology. The principal concern of the CNA is to obtain recognition and funding for nautical archaeology in the UK and to promote legislation for protection of U/W archaeological sites.

AUSTRALIA'S MARITIME ARCHAEOLOGICAL WORK

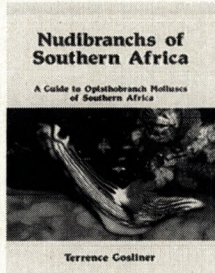
The Victoria Archaeological Survey Newsletter keeps me posted on the interesting work being done by the Maritime Archaeological Unit. A recently received newsletter reported on the MAU underwater work off Wilson's Promontory. The difficulties and disappointments are typical of marine archaeology: "The first two weeks of the project have involved extensive underwater search of areas on the

(Continued on Page 52)

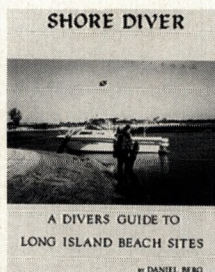
Divers Bookshelf



Diver's Almanac, Guide to the West Coast from Baja to British Columbia— This latest edition includes Baja California and the Sea of Cortez. Maps, diagrams and color photos. \$19.95 from Sports Almanacs, 1322 E. McAndrews Rd., Suite 201, Medford, OR 97504.



Nudibranchs of Southern Africa—By Terrence Gosliner, this book contains full color close-ups of 268 nudibranchs and includes notes on taxonomy, natural history and distribution for each. \$34.95 from Sea Challengers, 4 Somerset Rise, Skyline Forest, Monterey, CA 93940.



Shore Diver—This diver guide to Long Island beach sites, by Dan Berg, describes more than 40 such locations (including wrecks), and gives directions and conditions. Black and white photos and maps. \$10.95 from Aqua Explorers, 22 Maiden Lane, Lynbrook, NY 11563.

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V.I.P. CONSOLE

SCUBAPRO'S VITAL INFORMATION PACKAGE



TEXT AND PHOTOGRAPHY BY GERI MURPHY

The diver's console is unquestionably the most important instrument in sport diving today. Knowing how deep you are and how much air remains in the tank are two vital pieces of information needed for safe diving and survival.

Scubapro has combined this information into an exceptionally well constructed and durable package called the V.I.P. Console. V.I.P. is an acronym for Vital Information Package.

THE PRESSURE GAUGE

Constructed with a heavy duty C-type stainless steel bourdon tube and a close tolerance rack and pinion gear mechanism, the pressure gauge is a highly durable instrument. It ensures consistent accuracy of plus or minus 50 psi at the 600 psi range and plus or minus 100 psi at the 3,300 psi range.

The gauge offers a working pressure range from 0-5,000 psi—a 25 percent higher working pressure than most gauges

from other manufacturers.

The console is fitted with a 34 inch long high pressure hose for easy handling. The gauge is in an all metal case with a tempered glass lens that is scratch resistant. There is a high pressure swivel connector between the case and the high pressure hose, allowing convenient 360 degree rotation of the console.

The bright, luminous dial face has clearly printed numbers at the 0, 500, 1,000, 2,000, 3,000, 4,000 and 5,000 psi levels. Also, there are marks for each 100 psi increment. A color gradient band on the dial face runs from yellow (2,500-1,200 psi), to orange (1,200-500 psi) to bright red (500-0 psi). The red zone is a graphic warning of low air supply.

DEPTH GAUGE

The depth gauge contained in the V.I.P. Console is equally impressive. It is a highly accurate, oil filled, precision gauge

with a tolerance of plus or minus one percent of the depth scale for the first half of the dial range (0-75 feet). The second half of the dial face (75-150 feet) has a tolerance of plus or minus two percent. For example, at a depth of 100 feet the worst error you could have would be a shallow reading of 97 feet or a deep reading of 103. This error margin is regarded as superb accuracy. At a depth of 50 feet, the gauge could read between 48.5-51.5 feet.

The depth gauge is a low profile, large diameter configuration for precision performance. The case is filled with special oil and sealed for low maintenance.

As with the pressure gauge, the depth gauge features a bright, luminous dial face with depths clearly numbered in 10 foot increments. In between these there are fine line graduations at five foot increments. There is sufficient room between each five foot marker to accurately estimate your depth to within a foot or two.

The depth gauge dial face also features a color gradient band just like the pressure gauge. The yellow segment runs from 30-80 feet, the orange segment covers the 80-130 foot range, and solid red denotes the 130-150 foot range.

The V.I.P. Console is available in two different models, featuring depth gauges of different ranges. The console SKIN DIVER tested contained the 0-150 foot gauge, the most popular version. The alternate version contains a 0-230 foot gauge, designed for professional divers who dive deeper.

TEMPERATURE GAUGE

The third instrument on the V.I.P. Console is optional—sort of like icing on the cake. Smaller in size, but featuring the same high quality craftsmanship, it is a temperature gauge. It is encased in a high impact polycarbonate case and completely oil filled. The dial face is coated with the same high luminosity phosphor as used on the pressure and depth gauge dial faces.

The version SKIN DIVER tested contained a Fahrenheit scale from 20-120 degrees, well beyond the normal temperature range for sport diving. The gauge is accurate to within three degrees. There is also an alternate version available with a Celsius scale from -5° to 50° .

A unique feature of this temperature gauge is a movable bezel that allows the diver to note the water temperature—or perhaps a thermocline—for a logbook reference after the dive.

If a temperature gauge is of no interest to you, the same instrument slot can be used for Scubapro's low profile underwater compass. It is the same size as the temperature gauge and interchangeable with it in the console. The compass features a large needle pointer and a movable bi-directional bezel marked in ten degree increments.

CONSOLE BOOT

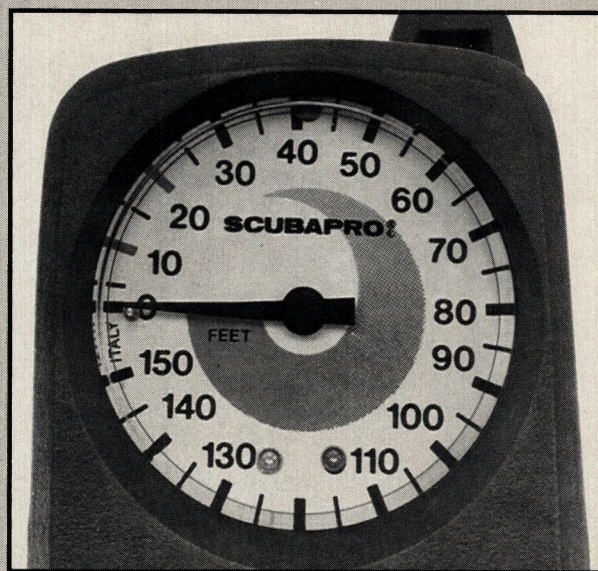
All three instruments are encased snugly in a thick, molded rubber boot that protects the package from shocks, bumps or scuffs on the reef. A molded rubber grommet on the upper right side of the boot allows the user to attach a snap clip. The V.I.P. Console can then be easily attached to the diver's buoyancy compensator, tank strap, etc.

CONCLUSION

We found the V.I.P. Console to be thoughtfully designed for diver use. It is a well crafted instrument package that performs flawlessly and with a high degree of accuracy. It is tough, durable and easy to read.

The V.I.P. Console—with 150 foot gauge—retails for approximately \$170, and the optional Fahrenheit temperature gauge is \$25. The underwater compass is \$30. (These are 1987 prices, 1988 prices had not been set when we went to press.)

For more information about the V.I.P. Console and other Scubapro products, see your Scubapro dealer or contact: Scubapro, 3105 Harcourt, Rancho Dominguez, CA 90221. 



The console is available with either a 150 or 230 foot depth gauge. Both are clearly marked and easy to read.



The Scubapro console's pressure gauge is rated to 5,000 psi—25 percent more than most other gauges. It is accurate to within plus or minus 50 psi at the 600 psi range and within plus or minus 100 psi at the 3,300 psi range.

The optional temperature gauge is available in Fahrenheit or Celsius scales, and features a rotating bezel for marking a temperature encountered at depth. The thermometer is interchangeable in the console with a U/W compass.



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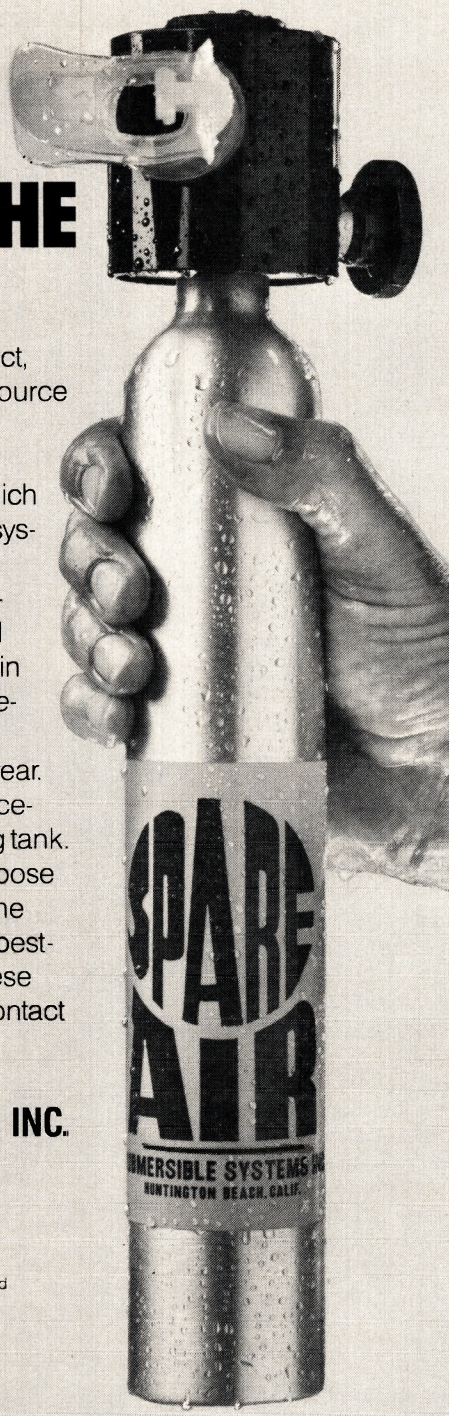
Regardless where you choose to carry Spare Air, don't leave the surface without it. It's what the best-dressed divers are wearing these days! Ask your dive shop, or contact Submersible Systems.

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TECHNIFACTS

(Continued from Page 49)

east side of the promontory where shipwrecks are reported (in historical sources) to have occurred. So far, no substantial ship structures have been found." Later in the report it says "Searches using a magnetometer have been attempted in a number of locations but are yet to yield results." One of the problems is that granite outcrops give the same signatures in a magnetometer as those expected from shipwrecks.

There are also the age old problems: "One has to deal with variations in the weather and sea conditions and maintain supplies of fuel for the boat and air for the divers. On the seabed, wreck sites are often obscured by sand and weeds, whilst on the water the divers' enthusiasm is influenced by temperature and the presence (real or otherwise) of unfriendly organisms." In spite of all, the interesting investigations of known shipwreck sites and search for new sites continues.

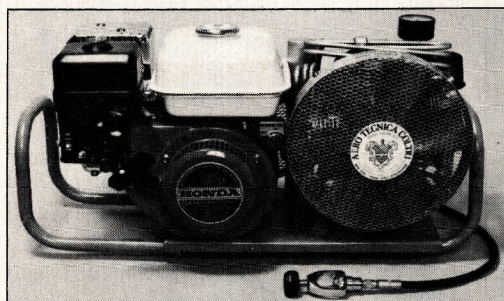
NORTH SEA DIVING LIMITATIONS

An analysis of 20,000 commercial dives in the North Sea oil patch showed an unacceptably high occurrence of Type II decompression sickness following long exposure dives. There was also an indication there might have been an increase in DCS cases when divers used heated suits. As a result of that study the following limitations for maximum bottom time for commercial divers were established in the British sector of the North Sea:

DEPTH FEET	BOTTOM TIME MINUTES
40	360
50	180
60	120
70	90
80	70
90	60
100	50
110	40
120	35
130	30
140	30
150	25
160	25
170	20

The new regulations further stipulate that a heated decompression chamber must also be provided and used when heated diving suits are in use.

It should be noted that the required dive profile makes the first (deepest) decompression stop at a depth no greater than 20 feet. It should also be realized that diving in the North Sea is quite difficult: cold water, heavy exertion and, frequently, weary divers. These are all conditions that could contribute to a higher



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incidence of DCS unless a special decompression profile is used.

NEW DRYSUIT INTRODUCED

A professional quality drysuit has been introduced by Posdive, Inc., 322 Main Street, Port Washington, New York 11050. According to divers, these suits, made in Sweden, offer great warmth and good durability.

MOPERS OF HAWAII

MOPers are Marine Option Program students attending marine programs at the University of Hawaii. A recent project of some of the MOPers was to transect some rugged, isolated underwater sites off the east end of the island of Lanai in Hawaii. In past years Lanai, the Pineapple Island, raised nothing but pineapples. Now the owner of the island, Castle and Cook, is developing two resort areas. Part of this project was to find a natural channel through Lanai's reefs to be used as a boat channel to the developing resort sites. The MOPers were doing underwater survey work in the channel search. Funded by Castle and Cook, this work provided valuable training for future marine scientists. When completed, some exciting diving resorts will be opened to Hawaiian visitors.

SIDESCAN SONAR

Because of the amount of information now available, and the capabilities of Klein Associates sidescan sonar, this subject will be discussed more fully in a future issue of SDM. See you next month for some revealing scans of the ocean bottom. You will be amazed. 

HSA AUTHORIZED INSTRUCTORS

Seventeen scuba diving leaders recently completed three day courses conducted by the Handicapped Scuba Association at The Inn On The Bay in Miami, Florida. Now authorized by the HSA, the leaders may issue recognized certification cards upon completion of training disabled persons to scuba dive.

Sponsored by Pisces Divers, Inc. of Miami Beach, the course involved candidates from the southeastern U.S. and Puerto Rico. Jim Gatacre, president of the HSA, assisted by paraplegic Ken Force of California, guided each set of candidates through a day of classroom seminars covering the theory and practicalities of physical impairments and adaptations, a day of pool work adjusting instructional techniques to the capabilities of disabled persons and a day of practical diving in the ocean.

Further information about Handicapped Scuba Association activities in the Miami area is available from instructor Lou Fead at Pisces Divers, Inc., 1290 5th Street, Miami Beach, FL 33139; (305) 534-7710. 

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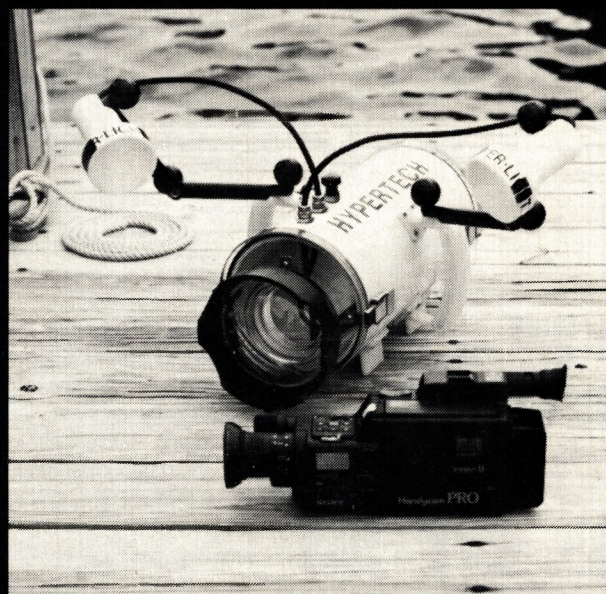


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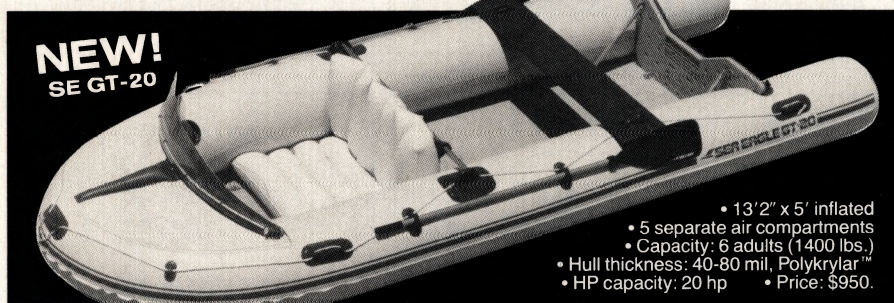


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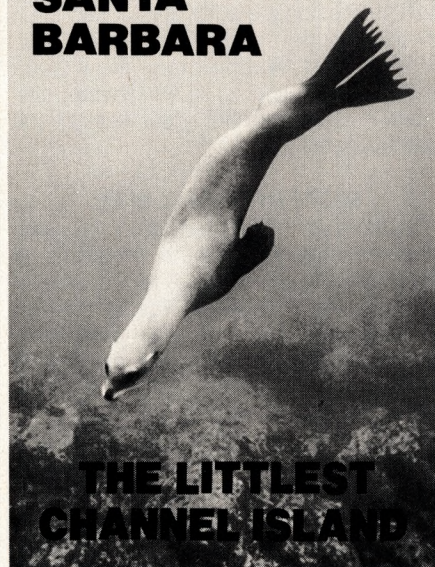
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CALIFORNIA'S SANTA BARBARA



BY JONI DAHLSTROM

Santa Barbara Island might be better described as an islet. Small, wind-swept, exposed to storms and heavy seas, the island is a jumble of contradictions. It completely lacks fresh water, but hosts a wild assortment of life, both on the land and in the sea. Steep brooding cliffs give way to grassy fields and, U/W, there is the choice of diving with dozens of sea lions or in lonely canyons layered with kelp, anemones and starfish.

This island is a favorite among Californians for its outstanding underwater visibility and tremendous amount of sea life. California sea lions and elephant seals have rookeries on the island. Game fish, abalone and lobster are plentiful. Even the seafloor adds to the beauty of these dives, with underwater arches and vertical walls more than 80 feet high. There is small sea life everywhere; anemones pack the rocks, sculpins and tiny gobies hide in the cracks and white sponges cover much of the reef.

To say that Santa Barbara Island is small is an understatement. It is only one by one and one-half miles wide and far away from any other landfall. The mainland is about 40 miles north and Catalina Island is 25 miles east. The island has two high peaks visible from about 25 miles. There is no water, nor are there any trees on the island.

It is largely because Santa Barbara Island is so isolated that it offers such fine diving. There is very little pressure on the marine life from fishermen or dive boats and untouched waters translate into unspoiled diving. There are some rocky sections where moray eels seem to hide in every hole; where they wait for darkness before leaving their shelter to hunt for fish and octopus along the reefs.

Visitors can explore the island topside



Left: The sea lion rookery is one of the main attractions to Santa Barbara Island. Above: The island has steep, rocky cliffs that give way to gently rolling fields.

as well. Nature trails circle the island. This is the only nesting ground in the United States for the black storm petrel, and brown pelicans occasionally nest on Santa Barbara. In the spring the island is covered with flowers, known as *Coreopsis*, that grow taller than ten feet. The fields are carpeted with tiny yellow flowers.

The biggest attraction at Santa Barbara is probably the sea lion rookery, on the eastern shore of the island. These animals are friendly and playful, the greatest risk to divers here is that sea lions sometimes steal masks and snorkels. But,

keep a safe distance away from the beach during the mating season; the bulls get pretty aggressive at that time. Other than the sea lions, the area around the rookery has little to offer divers. The bottom is flat sand and shale. Overall this is a lifeless and gray dive spot. The bottom seems to be stripped of shellfish and there is no kelp except near the shore. Elephant seals come out of the water to breed at Elephant Seal Cove Point, on the north shore of the island.

There are two underwater arches at Santa Barbara. One is Arch Point on the

northeast tip near the landing and the other is Arch Reef, near Webster Point. Both of the arches are excellent spots for underwater photography with either wide angle or macro equipment.

Arch Reef is 100 feet wide and the depth under the arch ranges from 40-60 feet. It is a beautiful dive, with the arch spanning a shallow canyon like a bridge. There are several varieties of lush kelp covering the sea walls and boulders in lavender, burgundy and brown. The schools of fish number in the hundreds and big schools of blacksmith are swept back and forth in the surge beneath the arch. There is a great deal of invertebrate life with colorful nudibranchs, snails and anemones covering every inch of the bottom. Arch Reef is one mile west of Webster Point and breaks in moderate swells.

The island is riddled with caves and ravines around Arch Point. With proper cave diving equipment, a diver could spend days in this section without seeing one-half of it. This is a good spot for lobsters and scallops.

Sutil Island consists of one giant rock that rises almost vertically from the ocean floor and is taller than it is wide. There is a narrow passage between the rock and the island with fantastic diving. The sea floor is about 50 feet deep, but it is broken up by narrow canyons with steep sheer walls that are more than 30 feet high. One outer wall drops from 60 to 140

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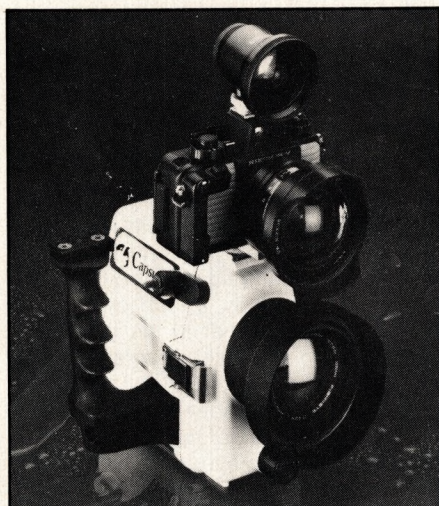
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SANTA BARBARA IS.

feet, straight down. In about 40 to 50 feet of water the canyon walls abruptly level off into plateaus. Dozens of fish swim along the edges of the cliffs. They hover at the brink of the canyon, alternately darting over the edge and then back into the safety of the kelp. On the flat areas the kelp is very thick and the amount of invertebrate life on the walls is incredible.

Hidden Reef is a deep dive and should only be attempted by advanced sport div-



photos/Adam Zeller

Elephant seals come out of the water to breed at Elephant Seal Cove Point, on the north shore of Santa Barbara Island.

ers. The best diving is at about 100 feet. Hunters will love this dive spot. Lobsters are there for the taking. They pack into the crevices and pile into the cracks one on top of the other, with as many as 20 in one hole.

Because many of Santa Barbara Island's best dive spots are at the maximum depth for novice sport divers it is

Schools of pelagic fish, such as these mackerel, frequently pass near the island.



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important that divers feel comfortable in the water. Their equipment must be in good working order and dive tables need to be checked before every dive. A lot of good diving is in the 40-60 foot range, but many spots are deeper and a diver who is not paying attention could wind up in water that is close to 100 feet deep.

The water temperatures at the island are cool, varying from 52-64°F. Full one-quarter inch wetsuits are a necessity throughout the year. Visibility is usually more than 60 feet; about the only time it drops below that is after storms and during the spring plankton bloom. Summer and fall offer the best diving.

The best way to dive Santa Barbara Island is on a charter dive boat. Any boat that does try to cross the channel needs to have a cruising range of at least 100 miles, compass and navigation equipment on board and a captain with good seamanship skills.

Diving off of a charter boat will make the trip far more comfortable, easier and let divers concentrate their attention where it belongs, on diving. Who can ar-

SANTA BARBARA ISLAND INFO

Channel Islands National Park
(805) 644-8262

For information regarding Santa Barbara Island, camping permits, day hikes, rules and regulations.

gue the convenience of having a hot breakfast before the first dive? The dive boat crews also know the island very well and they provide pre-dive information on depths, bottom terrain, marine life and what to expect at each spot. There are several boats in the Los Angeles, Ventura and Santa Barbara areas that make regularly scheduled trips to the island.

Santa Barbara and Anacapa Islands were set aside in 1938 to form the Channel Islands National Monument. In 1980 the monument became our 40th national park and was expanded to include Santa Rosa, Santa Cruz and San Miguel. There is a park ranger stationed on Santa Barbara Island year-round and overnight camping permits can be obtained in advance. Day hikers don't need permits.

All of the waters within one mile of the island are part of a wildlife and marine sanctuary. California fish and game laws apply to the taking of all game, except on the east side of the island where invertebrates cannot be taken in less than 20 feet of water.

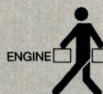
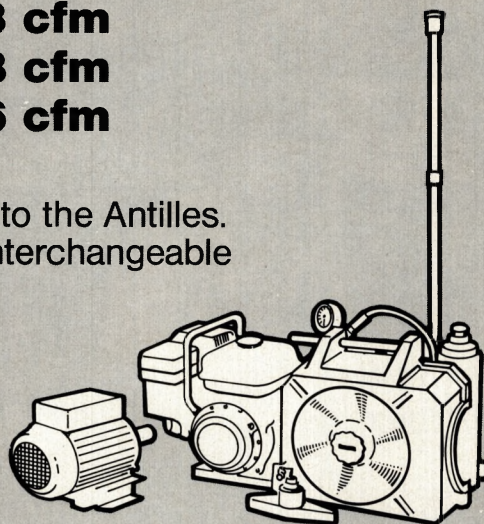
Santa Barbara Island is a fantastic diving opportunity. Here is the perfect combination of clear water and abundant sea life on a tiny, isolated island, just a few hours away from downtown Los Angeles. 

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MR12-IV REGULATOR

(Continued from Page 47)

slightly more cracking effort than my comparison unit. Hard breathing at depth resulted in good airflow with a slight spray. I would have no qualms about using the MR12-IV while working at depth.

Purging required just the smallest puff of air. Pushing the purge button resulted in a big blast, more than enough to do the same job. When I took it out of my mouth with the mouthpiece up, a very strong freeflow resulted, but it stopped as soon as the mouthpiece was turned down and didn't resume when turned up again. (Any regulator will freeflow when initially removed from the mouth with the mouthpiece up.)

There was only one small idiosyncrasy. At the end of a long, slow inhalation a slight moaning could be heard. This could have been an unusual resonance in my test unit and it only occurred with that specific breathing pattern.

Mares' new MR12-IV is a worthy successor to a proud tradition. Its simple, dependable design combined with modern, lightweight materials makes this a good choice for divers of all ability levels. It comes with a limited lifetime warranty—complete with plastic warranty card—that covers all parts for the original owner as long as it is serviced annually by an authorized service center. Packaged in a padded plastic carrying case, the MR12-IV carries a list price of \$330. For more information, contact SeaQuest, 2151-F Las Palmas Drive, Carlsbad, California 92009.

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The San Fernando Valley area of Los Angeles has a new dive store, Pacific Scubonaut. Scubonaut carries a full line of top quality dive gear. PADI instruction will be offered by a full-time instructor. Classes will range from open water certification to instructor development. Emphasis will be placed on specialty classes, including underwater hunter, night diving and cavern diving.

Pacific Scubonaut's owners have designed the store to fill all the diver's needs. Full gear rentals, equipment repair and 3,000 psi air fills are available. Dive travel to exotic locations, as well as local dive charters to the Channel Islands, are planned. Also planned, for the very near future, is a full video department. All the latest underwater videos will be available for viewing and purchase.

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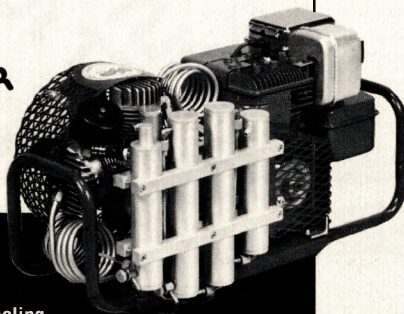
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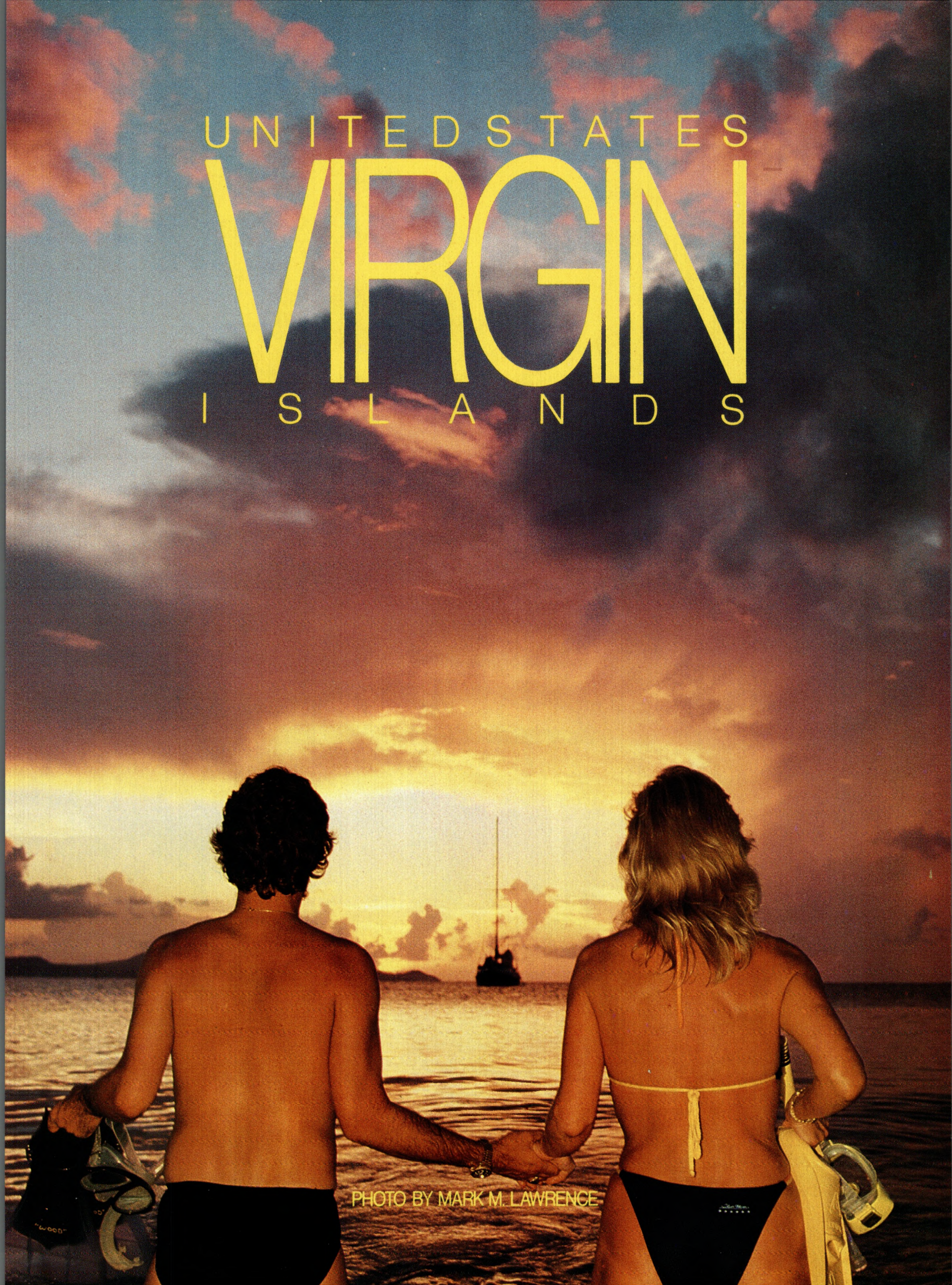
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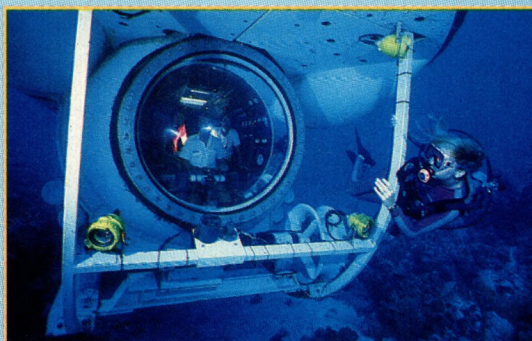
UNITED STATES VIRGIN ISLANDS



Any overview of the United States Virgin Islands sounds like a well planned advertisement. Yet, such praise is accurate. Some say there are more than 100 isles, cays and outcroppings making up the USVI, but we divers are most concerned with the big three: St. Croix, St. Thomas and St. John. These are so picturesque that Hollywood would rather shoot on location here than try and duplicate this environment on sound stages: Green hills plunge down to the blue Caribbean. Between the rugged rocky headlands run white sandy beaches. In the aquamarine water that surrounds the islands there are fringing reefs, coral and sponge encrusted sea-mounts and several wrecks, the majority of which fell victim to either natural disasters or pirates' cannons. Beautiful bays serve as calm dive sites during the day and offer a sheltered anchorage to cruising yachts at night.

Since the USVI sit 18 degrees above the equator, the days are bright and warm; providing a great excuse to purchase the latest high-tech sunglasses or sport the new, brightly colored sunscreens. The constant trade winds take the edge off the midday sun and the steady breeze is useful for sailing your chartered yacht among the scenic islands or propelling your inflatable raft across the pool to the wet bar.

To many people, the only way to tour the USVI is by water. As with land based resorts, you can find a cruising yacht to match any style or budget. Least expen-



sive are the bareboat charters. All you need is at least one competent sailor in the group and away you go.

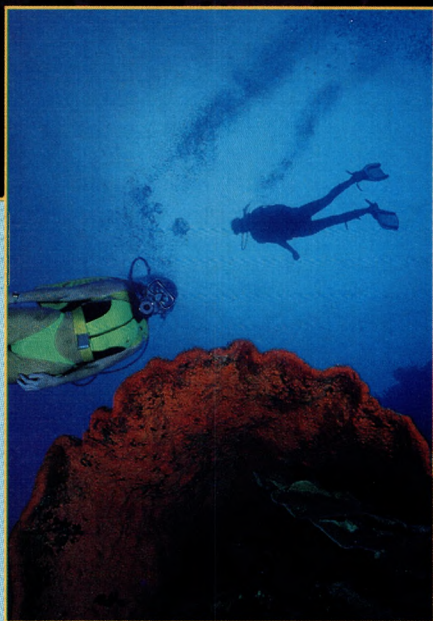
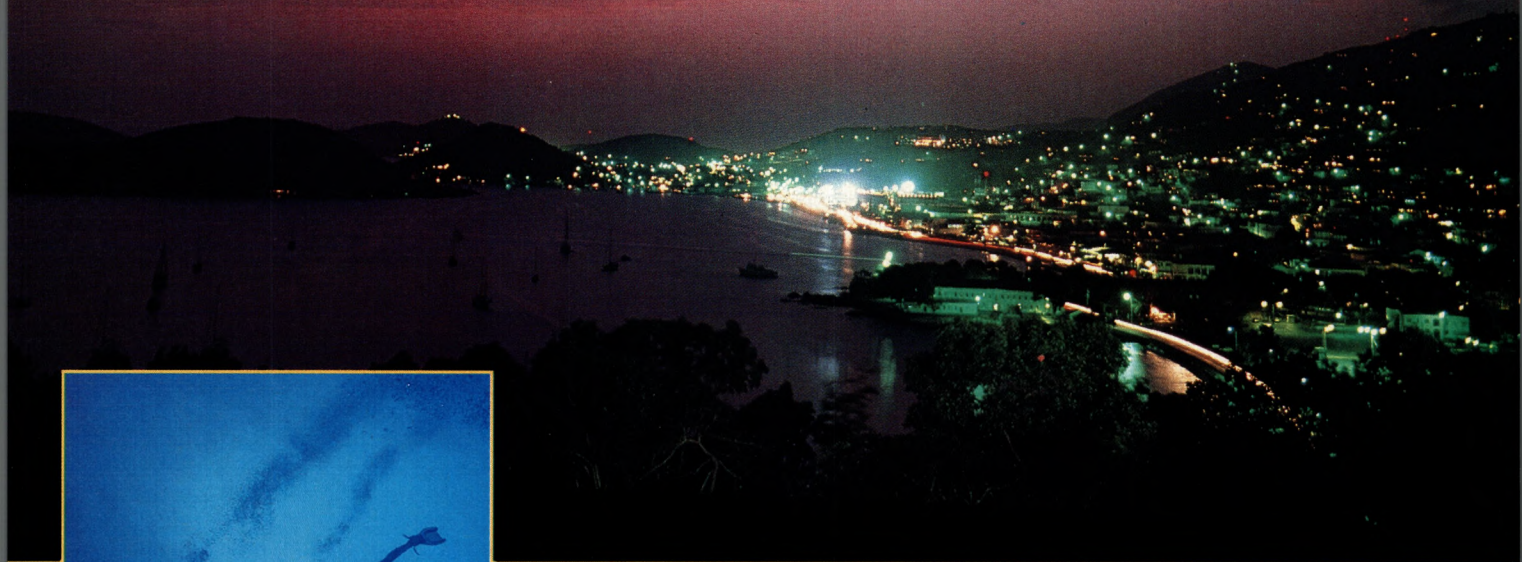
Of course, it is handy to have an intimate knowledge of the local waters (more about St. Thomas' Packet Rock later) and who doesn't like to wake up to the smell of brewing coffee in the morning, so crewed charters are very popular. Your private yacht can also be outfitted in a variety of fashions. Although most basic meal plans are more than adequate, many people opt for a few extras.

Chris Moore at V.I. Scuba/Sail Charters organizes week long trips with gourmet foods in the ice box and vintage wines in the bar. You design the schedule and pace of your vacation. When you find a secluded cove with great diving, you can stay as long as you like or move on as soon as the mood suits you. Since many yachts have air compressors on board, your diving can truly be unlimited.

The USVI are surprisingly easy to get to. Direct flights leave from cities such as New York and Miami. Several daily flights

AMERICA'S PLAYGROUND IN THE CARIBBEAN

TEXT AND PHOTOGRAPHY BY MARK LAWRENCE



Opposite page, clockwise from top: Christiansted Harbor, St. Croix, viewed from the Hotel Caravelle; unwinding at the pool bar at Bolongo Bay Beach and Tennis Club; an *Atlantis* submarine off St. Thomas; relaxing on the water at Bolongo Bay.



Top: Lights of Charlotte Amalie. Clockwise from above left: Orange sponge at Salt River's West Wall; Harbourfront restaurant, Charlotte Amalie; chefs at the Banana Bay Club at Hotel Caravelle; Pan Am jet.

arrive at San Juan in time to make same day connections to the USVI. Airlines such as Bohlke International book charters to San Juan and the States. You can hire their jets to fit your private schedule and needs. Even on the regularly scheduled commercial airlines such as Pan Am, the trip to the USVI from the USA doesn't last long; there's just enough time for a movie and a meal.

USVI HISTORY

Columbus' second voyage to the new

world took considerably longer than the first. Searching for fresh water, he sighted and stopped at St. Croix. As the 500th anniversary of Columbus' discovery of the Virgin Islands approaches, preparations for a colossal celebration are commencing. With their unusual history the USVI have a great deal to commemorate. Through their evolution, the flags of more than one half-dozen countries, including Holland, France, England, Spain, Denmark and the USA, have flown over various members of this island group.

Today, each of the main islands has a distinct character. St. John, the smallest and least developed, has the justifiably acquired reputation for being the most laid back. Approximately two-thirds of the island's 21 square miles has been declared a national park. With so much of it designated as a preserve, St. John should always be serene and unspoiled.

Compared to St. John, St. Thomas people move to a frenzied tempo. St. Thomas emerged long ago as the commerce center. Since the Danes declared

U.S. VIRGINS

it a free port in 1724, Charlotte Amalie has been a shopping mecca. Today, U.S. Customs still grants special exemptions to U.S. citizens returning from the USVI. Visitors may return to the U.S. with \$800 worth of purchases, twice the normal limitation. Antiques and island made goods are duty free and you may enter the U.S. with an additional fifth of liquor, such as Cruzan Rum, if it is made in the USVI. St. Thomas has scores of fine restaurants and some of the most famous beaches in the world. St. Croix is, in comparison, the slumbering giant. Measuring roughly 28 miles in length and seven miles at her widest point, St. Croix covers twice the area of St. Thomas. Although St. Croix had, at one time, 300 working sugar plantations, it never became as cosmopolitan as St. Thomas. You can still buy and renovate a sugar mill on St. Croix.

ST. CROIX

St. Croix has two major cities, Frederiksted on the west end and Christiansted on the northern shore. Frederiksted activities concentrate on the waterfront. The buildings lining Strand Street by the water date back to the 1700s. Constructed with massive walls measuring more than a foot thick, these warehouses, which once held shipments of sugar, molasses and rum, now shelter restaurants, dive shops and jewelry stores. The islands' architectural style, favoring archways and porticos, took advantage of the tons of brick brought to the islands as ballast on incoming merchant ships. Frederiksted restaurants range from the casual lunchtime fare at Drake's Paradise Cafe to the Brandy Snifter's West Indian fresh fish or prime rib.

Christiansted has its own charm. Narrow cobblestone streets neatly crisscross the old town. Peering through gateways reveals well maintained courtyards and gardens. Signs and shop names draw attention to the fact that Alexander Hamilton, who later became a founding father of the United States, worked here as a clerk. Actually, part of Christiansted is a national historic site. The yellow walls of Fort Christiansvaern still guard the harbor. Across a well manicured commons stands the Steeple Building. Originally constructed as a Lutheran church, this structure now houses a museum.

Downtown Christiansted buildings, outside of the national historic site, still maintain their original exteriors. Brick lined display windows of gems and precious metals attract potential buyers into modern clearing houses such as Colombian Emeralds. Modern shops in old courtyards, such as the Pan Am Pavilion, offer everything from dive gear and cameras

to tropical clothing at Safari Republic.

St. Croix offers sumptuous dining and numerous other pursuits besides scuba diving. How about a private ride for two in a Submarine Adventures of St. Croix submersible, down the wall outside of Christiansted Harbor? When your pilot guides it down several hundred feet, you will be looking at a world that few people, including scuba divers, get to see. Among the topside distractions offered at the Carambola Beach Resort and Golf Club and at the Buccaneer Hotel, are challenging 18 hole championship golf courses. The Buccaneer even has a spa, a jogging trail and a par course. At hotels such as the Grapetree Beach, when you have soaked up enough sun on the wide beach, you can decide on whether to engage in a few rounds of tennis or cruise the bay on one of the Sunfish sailboats. On the edge of Christiansted, a new racquet ball, aerobic and Nautilus health club is due to open before this article goes to press. Go horseback riding out-



side of Frederiksted at Jill's Equestrian Stable. On Centerline Road you will find the Estate Whim Plantation. This is a rare opportunity to walk through a restored and fully furnished sugar plantation great house and mill. The St. George Village Botanical Garden, also on Centerline Road, has 17 acres of well landscaped tropical plantings.

Buck Island Reef National Monument deserves some special mention. The official preserve includes the surrounding reef and a well marked U/W trail. Full and one-half day charters take families to Buck Island for snorkeling and picnicking. Glassbottom boats make the short run from the docks at Christiansted to the park to show nonswimmers the reef. The name Buck Island refers to the herds of goats that used to graze on it. Present residents range from fleet footed mon-gooses to acrobatic brown pelicans. Like the U/W habitat, Buck Island's surface continues to thrive under the protection of the National Park Service.

ST. CROIX DIVE OPERATORS

Unlike some islands, the USVI have both beach and boat diving. At Cane and Davis Bays on St. Croix the walls lie with-

in 150 yards of shore. In the USVI all dive vessels undergo routine United States Coast Guard inspections and all carry basic safety equipment such as oxygen, first aid and VHF radios. Just because the islands move at a slower pace, it by no means implies that these dive operators are behind the times. You will find that most charters follow the U.S. Navy dive tables, but the divemasters are computer friendly. As a matter of fact, St. Croix's DIVE EXPERIENCE conducts a PADI specialty course in dive computers.

Perhaps one of the best known companies is CARIBBEAN SEA ADVENTURES. With a fleet of 13 vessels, it's hard not to notice this company. It utilizes its resources to offer all kinds of watersports, from deepsea fishing to scuba diving. Among the CSA fleet are five multi-hull sailboats, the glassbottomed *Reef Queen* and four dive boats—the 23 foot *Seaspray*, the 28 foot *Scorpio*, the 37 foot *Deliverance* and the 40 foot *Phoenix*. CSA picks up divers either at Christiansted or at the Buccaneer Hotel.

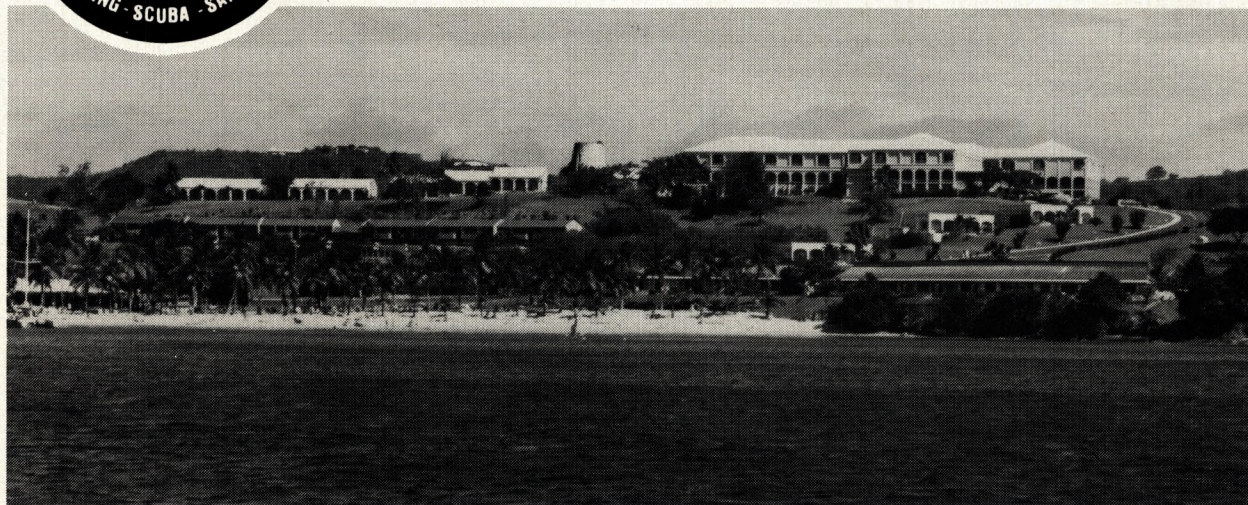
With six instructors on staff (from NAUI, PADI, SSI and NASDS), it is easy for Caribbean Sea Adventures to always place one instructor with every six diving guests and, therefore, attend to individual's needs. Sign up for CSA beach and boat dives or any of its other water related activities at the main store in the KING CHRISTIAN HOTEL on King's Wharf, at the BUCCANEER HOTEL, or at the dock-side booth next to the dive boats.

The white dive boat docking next to the European styled HOTEL CARAVELLE is VIRGIN ISLAND DIVERS' 35 foot *Brain Storm I*. Although certified for 22 passengers, Virgin Island Divers' owners, Jimmy and Kathleen Antoine, carry a maximum of 15 divers on board. The wide, water level dive platform makes entries and exits simple. The Virgin Island Divers' staff works hard so you won't have to. As it has all along, the company runs beach and Frederiksted Pier dives. It works with the nearby Hotel Caravelle, HOTEL ON THE KEY, MILL HARBOR and CATHY'S FANCY CONDOS. The well stocked shop in the Pan Am pavilion probably has whatever item you forgot to bring plus a few shirts and souvenirs you will want to take back with you. At the shop, you can rent Sony 8mm video, Sea & Sea 110 or 35mm underwater cameras.

By the water at Christiansted's CLUB COMANCHE HOTEL, beneath the sign of a Blue Whale, look in the sea grape tree outside the shop to meet the unofficial mascot of DIVE EXPERIENCE, Chester, the large blue macaw. Michelle Pugh's concern for the safety of her guests and the well being of the ocean is shared by her staff. The 28 foot Delta, M/V *Dive Experience*, was designed by Michelle to carry 13 divers with room to spare. Before stepping on board you can rent a Nikonos (ask Michelle for picture tips and advice, she's an accomplished underwa-



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ter photographer) or a Sea & Sea 110 or 35mm camera. This PADI Five Star Training Facility also offers a customized video program. Dive Experience's guests usually stay at the King Christian, Club Comanche or the CORMORANT BEACH.

St. Croix's second major city is home to CRUZAN DIVERS, INC. The Cruzan Divers store and the FREDERIKSTED and ROYAL DANE hotels all face the water on Strand Street. Cruzan Divers runs the 42 foot *Afternoon Delight* and 23 foot *Sea Ox*. Between the two vessels, Cruzan Divers leaves the dock with 28 divers. They've been known to run the larger *Afternoon Delight* for only three guests because "We just thought that they might appreciate all the extra room." Cruzan Divers also charts full or one-half day

sport fishing trips, rents sailboards or can arrange sunset or moonlight cruises on board the three masted schooner *Elinor*.

This west end operation has a full service repair station and rents equipment from several major lines. Tom Long, owner of Cruzan Divers, was a key figure in the placement of many of the nearby Butler Bay wrecks. After watching the sunset from the seawall in front of the dive shop, a short walk puts you on the famous Frederiksted Pier for night diving. Cruzan Divers manager and NAUI instructor, Linda Dean, leads a dynamite night dive on the pier. Be sure to bring your cameras. Linda and her staff are masters at finding critters for close-up photography.

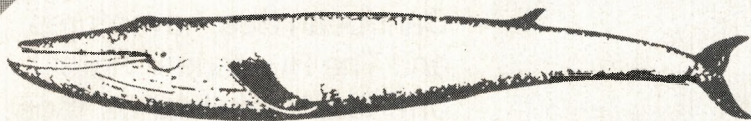
SEA SHADOWS owners, Libby Wessel and Steve Fordyce, established their main store (a Sea Shadows' booking office stands on the wharf in front of Christiansted's Anchor Inn) at Cane Bay in the center of the north shore wall diving scene. They have packages with many of the surrounding resorts including CARAMBOLA BEACH RESORT AND

GOLF CLUB, the WAVES AT CANE BAY, CANE BAY PLANTATION and the ANCHOR INN.

Sea Shadows runs both NAUI and PADI certification courses. Not only does it rent several major equipment lines, but repairs them too. If you go for a dive with Sea Shadows, try renting one of its Tekna scooters. Sea Shadows, which has earned a reputation for easy access beach diving, also runs two tank dive trips on the cabin cruiser *Laid Back Vir-*

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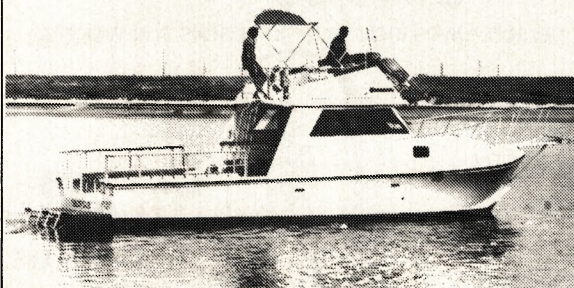
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Dive Experience, Inc.

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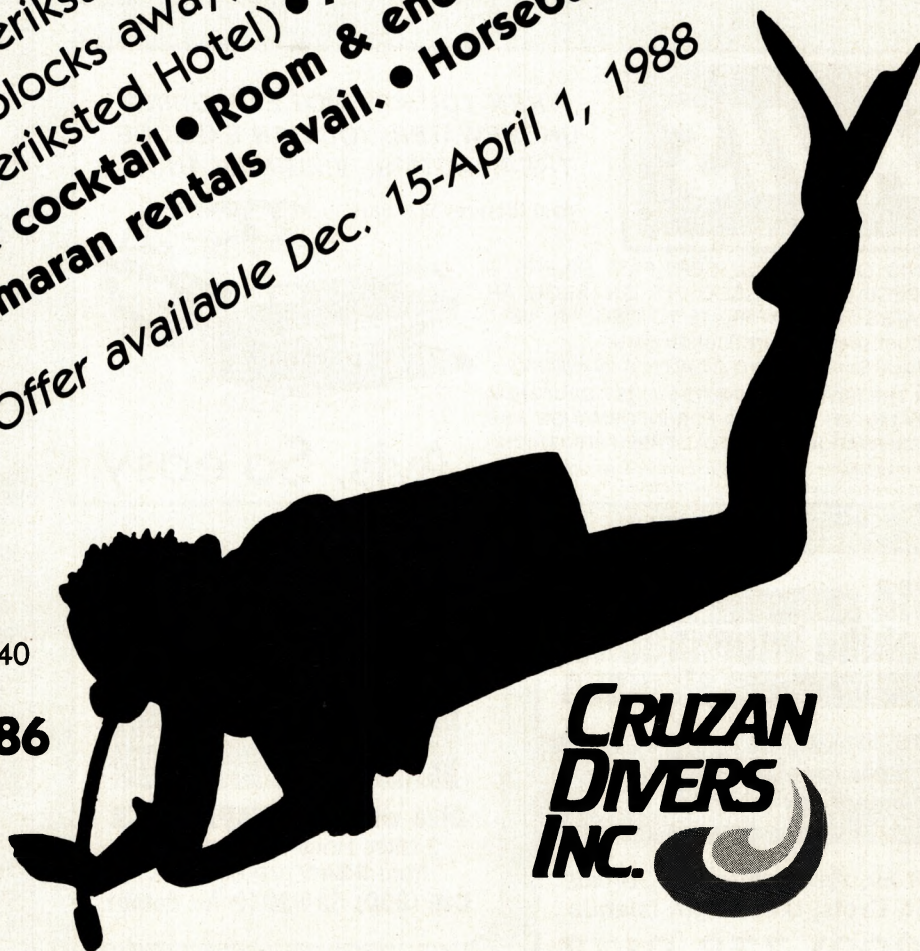
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gin. Drop in for Sea Shadows' detailed maps of the most popular beach sites.

A couple of years ago, Larry French docked his dive boat *The Reliance* at the Green Cay Marina east of Christiansted and found the location so convenient he moved his entire operation, UNDERWATER ST. CROIX, to the marina. His custom designed Offshore 38, *The Reliance*, has a walk-through transom, freshwater shower and camera rinse and plenty of room. While the vessel is certified for 24 passengers, the company usually runs with just half that number. The NAUI instructors conduct resort on up to advanced certification courses. Although Underwater St. Croix rents mostly Dacor equipment, it repairs many major lines. Underwater St. Croix can arrange accommodations with TAMARIND REEF BEACHSIDE INN and several St. Croix condos for groups or individuals.

North of Frederiksted, on Rainbow Beach, is SEA SPORT, INC. Besides being PADI instructors, shop owners David Clark and Susan Rhoades are licensed boat captains. They run the 24 foot *Mako Polo* for one and two tank dive trips. They rent everything from mask and fins to

disc cameras and Tekna scooters.

Butch and Kathy Belanger operate their dive boat, *Reefraker*, from the Salt River Marina. The BELANGER'S VIRGIN DIVE cruises the waters of Salt River on wildlife excursions and sunset charters.

ST. CROIX DIVING

While interviewing the St. Croix dive operators this year, we asked them to name three or four of their favorite dive sites. Each of the following sites was mentioned by at least two of the island's seasoned professionals.

Scotch Bank came up a few times. The reef, highlighted with basket sponges and patrolled by groupers and angelfish, slopes steeply down from 50 feet to around 100, shelves out and then drops again. Look for southern stingrays in the sand between the scattered coral heads. Manta rays have also been spotted here.

Long Reef is just that, a six mile stretch of coral jungle. Dive boats frequently visit Long Reef as a second dive on a two tank trip since the reef begins in 30 feet and gradually slopes to 50 feet and deeper. Different operators have their own favorite stopping points along this stretch, but you can usually find lots of young pillar coral colonies, elkhorn and patches of finger coral.

The region from Salt River to Hamm's Bluff has several of St. Croix's best known dive sites. Two separate locations

make up Salt River. **Salt River's East Wall** begins in about 50 feet and drops sharply to more than 100. Caves and canyons cut into the wall's face. This is a great location to watch schools of horse-eye jacks or barracudas. **Salt River's West Wall** crests in only 30 feet and falls straight down to 130. Deep crevices dissect the wall so much that free standing pillars seem to grow from the bottom. While you're staring at the yellow, lavender or massive orange sponges, don't forget to glance out occasionally past the black coral trees to check for spotted eagle rays in the sand below you.

The Stacks got their name from the piles of plate coral that comprises the reef. Snappers and grunts mill around the sand channels that lead from the shallow coral gardens at 40 feet down the steep slope to the base at 80 or 90 feet.

Like many of St Croix's dive sites, **Rustop Twist** borrowed its name from the nearest old estate on the north shore. Rustop's wall drops from 40 to 85 feet. Groupers and coney hover around the numerous ledges. Pelagic fish frequently swing in along the drop-off.

One of St. Croix's most renowned locations, **Cane Bay**, has several dive sites. Swimming out from shore you pass through the shallow elkhorn stands and on into **Cane Bay Gardens**. Exiting the gardens and continuing on toward the wall past the sand flats, you swim over coral heads that merge to become the buttressing fingers marking the crest of the main drop-off of **Cane Bay Wall**. Several anchors have been found along the edge. Down the wall, the scene becomes a wonderful mix of rope, tube and basket sponges growing on the shelves of plate corals. Large pelagic fish, turtles and even dolphins frequent this area.

Perhaps the most photographed Danish anchor in the world sits on a sandy shelf at 60 feet on **Northstar Wall**. The wall starts at 30 feet. Most divers zip down it to see the big anchor on the sand and fail to notice they just swam over another anchor jutting out from the wall.

At **Davis Bay**, St. Croix's wall comes closer to shore than anywhere else. Davis Bay can best be described as a mix of Salt River and Cane Bay. Like Cane Bay, Davis Bay is a lively shallow coral garden. The alternating sand channels and coral ridges crest at 35 feet before dropping sharply to more than 100.

On the island's northwest corner, **Hamm's Bluff** sits out in the Caribbean. Since Hamm's is more exposed, it is subject to choppy seas and variable currents at any time. Experienced divers will enjoy exploring the boulders that are covered with soft corals.

On the west end, the **Butler Bay Wrecks** form a wreck diver's bonanza. How about starting the day by exploring the 177 foot **Rosaomaira**? Although the bottom exceeds 108 feet in some places, it is possible to tour the enormous ship without sinking below 90 feet.

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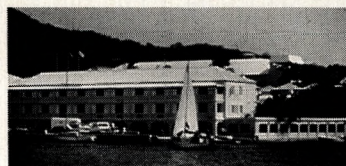
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U.S. VIRGINS

After a suitable surface interval, if you're ready for a good swim, you can survey the 140 foot North Sea trawler, **Suffolk Maid**, which settled upright in 60 feet. Only a five minute swim from the *Suffolk Maid*, the **Northwind**, a sponge encrusted tugboat, grants sanctuary to small schools of cardinals, blackbar soldierfish and grunts. A few kicks farther and you will reach **Truck Lagoon** and the **Habitat**. The Habitat consists of three connected spheres that lend themselves to diver portraits. As the name implies, there are several submerged auto and truck frames and bodies in Truck Lagoon.

South of Frederiksted, two more natural reef sites capture people's attention. **King Reef** slopes down from 45 feet to more than 140. Large maroon basket and massive orange sponges decorate the coral ridges. At 50 feet **Chub Hole** is a great second dive. Divers search under the ledges for nurse sharks, eels, crabs and lobsters.

Another must see is the **Frederiksted Pier** at night. Divers can enter from the shore on either side of the pier or by striding off the floating dock one-third of the way out the wharf. Bright red and yellow

sponges ornament the pilings. Close inspection of the encasing growth reveals sleeping Spanish hogfish, sharpnose puffers and juvenile trumpets. Giant arrowcrabs graze on algae and decorator crabs have taken sponge dressing to new heights. One little crab had chosen a pink encrusting sponge; it was hard to tell who was taking advantage of who.

ST. JOHN

If you need to escape from the world, St. John is the place to go. You may follow a score of tranquil hiking trails that traverse many of the 9,500 acres contained by the Virgin Islands National Park. The paths wind past photogenic vistas, ruins and ancient petroglyphs. St. John's answer to St. Thomas' Magens Bay is Trunk Bay. Not only is it considered one of the most beautiful beaches in the world, it also has a marked underwater trail for snorkelers.

Escape is an art form on St. John. CANEEL BAY first started the trend. This resort built its 156 guest rooms on a 170 acre property that includes two secluded bays and an 18th century sugar mill. Long known as the retreat for the rich and famous, Caneel Bay remains an elegant way to stay in the USVI.

The VIRGIN GRAND BEACH HOTEL ST. JOHN, at Great Cruz Bay, definitely makes a statement. All of its 264 rooms are fully air-conditioned, equipped with

color TVs and completed with a terrace or patio. From the waterfall in the main pool to three room townhouses with indoor whirlpools, the lifestyle is plush.

MAHO BAY'S concept was to intrude into the natural environment as little as possible. Its award winning design of connecting wooden walkways and quaint cottages has been used as a model for other campgrounds.

CINNAMON BAY CAMPGROUND makes it easy to live close to the land. Visitors may choose from cottages, tents or bare sites. Facilities for guests even include a full service commissary and dining center. Many people opt for the private home and condominium rentals available in and around Cruz Bay.

ST. JOHN DIVE OPERATORS

CINNAMON BAY WATERSPORTS CENTER's dive boat M/V *Cinnamon Bay* comfortably carries a dozen divers to the reefs around St. John. Bob Conn, owner/operator of Cinnamon Bay Watersports has been guiding divers and snorkelers in the area for years.

CRUZ BAY WATERSPORTS operates two dive boats: the 28 foot *Splash* and the 40 foot *Blast*. This is the exclusive dive operation for the Virgin Grand Beach Hotel St. John. This PADI Five Star Training Facility offers specialty classes in night, wreck and deep diving.

Both Cruz Bay Watersports and Paradise Watersports have complete scuba rental programs. PARADISE WATERSPORTS serves Caneel Bay and local private guesthouses and condos. Each of its three dive vessels, the 25 *Privateer*, the 35 foot *Jumbi Jay* and the 27 foot *Caribe*, carries six divers. Paradise can also create custom videos on either 8mm or VHS for its quests. Stu Brown's ST. JOHN WATERSPORTS, INC. conducts one and two tank dive trips. Bob Shinnars runs the firm's dive boat, the 28 foot *Spencer*, for up to six passengers.

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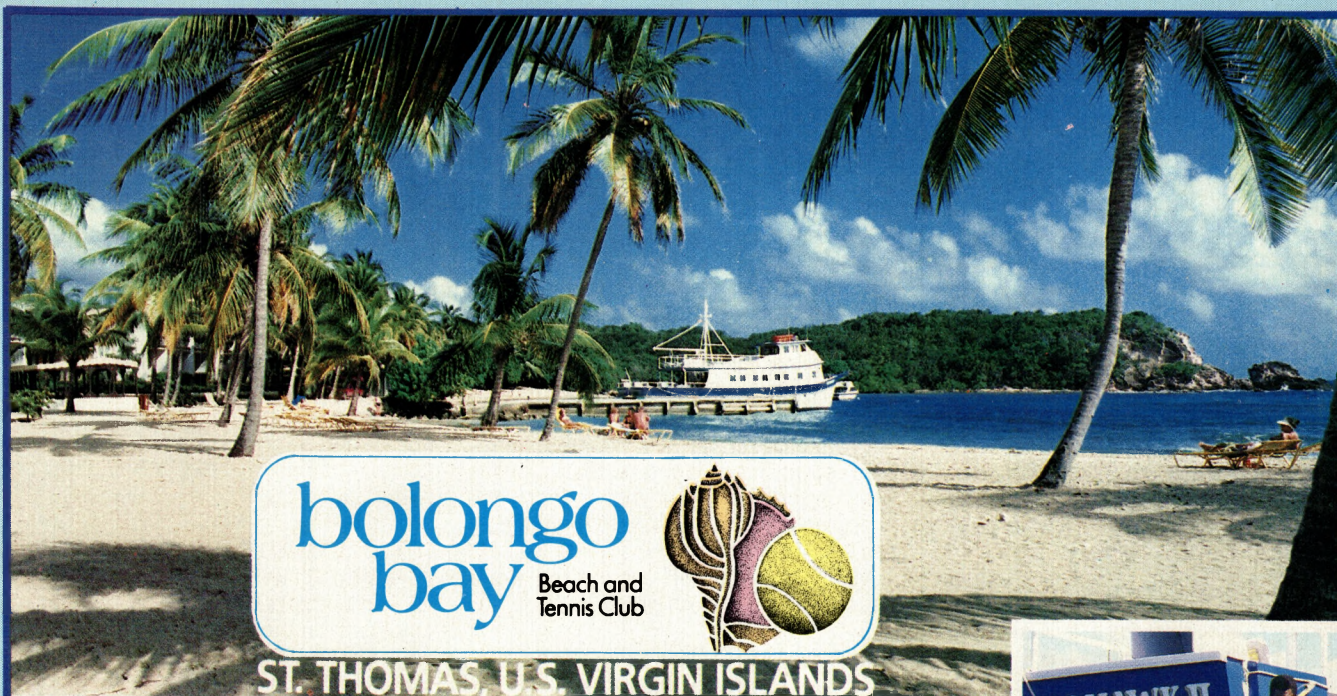
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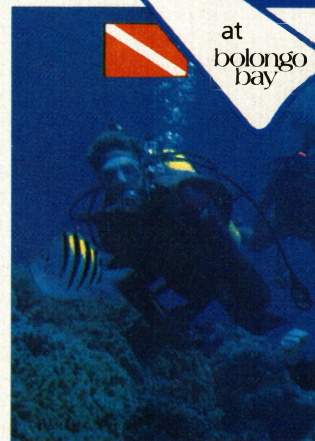
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U.S. VIRGINS

ST. JOHN DIVING

St. John and St. Thomas are so close it takes a mere 20 minutes for the ferries to cross Pilsbury Sound, which divides the two islands. Many of the dive sites described in the St. John section of this article are also favorite destinations for the St. Thomas dive operators.

Carval Rock leads a string of islands that close off the northern end of Pilsbury Sound. On Carval's northern side, facing the Atlantic Ocean, the front of this rocky outcropping drops steeply to 90 feet. Impressive schools of open water fish often rush by the rock. Orange and yellow sponges and cup corals cover the insides of the caves. Carval's Caribbean side is marked by elkhorn stands in the shallows. Tarpon roam the boulders looking for baitfish.

Next in the line of islands is **Congo Cay**. Along its steep northern face come schools of pelagics such as bonito. The island's western tip, **Congo Point**, has a stair-stepped U/W profile down to 90 feet. Manta and eagle rays are frequently sighted here. Around the rock caves and channels, barracudas eye the schools of baitfish. Pelicans provide entertainment during surface intervals.

The south side of **Mingo Cay** slopes down to just more than 50 feet. Hiding in the staghorn and other hard corals, spotted drums and high hats cruise back and forth in their little territories.

Thatch Cay's northern side, like Mingo, Congo and Carval, faces the Atlantic. This sheer front is another good location to watch for passing mackerel and other pelagics. At the **Tunnels**, on Thatch Cay, one can tour eight different arches and tunnels at an average of 40 feet. Colorful sponges cling to the rock walls.

At **Vetti Bay** on Thatch Cay, the sandy slope descends to about 55 feet. Gorgonians and other soft corals dominate the bottom. Watch for lobsters.

Just off Cruz Bay, under the ledges in 25 feet around **Stevens Cay**, you can find copper and silver sweepers. Another good shallow dive is where the coral ledge swings around to form a natural **Fishbowl**. Mustard colored fire corals cap the reef top and bright red sponges coat the ledges' underside.

South Drop is the crest of St. John's southern shelf. The coral slope begins in 60 feet. At the **Horseshoe** this southern rim makes a noticeable bend. The walls of this area climb from 110 to within 60 feet of the surface. As with South Drop, Horseshoe is a great place to look for lobsters in the crevices and rays out in the sand channels.

In only 30-45 feet at **Greenheads** you can find a wide assortment of hard and

soft corals. It's a great site for beginners or macrophotographers.

ST. THOMAS

Most divers grab their first glimpse of the USVI from the window of an incoming jet. From the air you can spot world famous beaches such as Magens Bay or Coki, some of the fringing reefs and Charlotte Amalie's busy harbor, dotted with yachts and a few cruise ships.

St. Thomas has long been a favorite port of call for cruise ships. More than half of the one million visitors to the USVI arrive by boat. There's usually at least one cruise ship tied up at the West Indian Company dock and sometimes as many as three at the pier with a fourth on the way. When the ships are in port, the shopping district of Charlotte Amalie bustles with activity.

Many of the stores occupy old warehouses that were originally built in the

own corner of paradise, look at the **BRASS ISLAND CLUB** on Inner Brass Island. Development plans include private lots, a condominium complex available for full or interval ownership, a 156 room resort incorporating restaurants, tennis courts, sportfishing boats and a complete diving facility.

Want to convince someone they should learn to scuba dive? Take them for a dive on board the 68 foot, 48 passenger submarine *Atlantis III*. The experienced pilots deftly command the sub to glide through coral canyons and hover over fishfeeding stations with ease. In the air-conditioned comfort of the main cabin you can point out all the colorful marine life your non-diving companions are missing by not trying scuba diving.

ST. THOMAS DIVE OPERATORS

As with all the dive operators we interviewed in the USVI, any of the St. Thomas dive instructors would be glad to give your friend a resort course. These companies conduct referral dives and open water certification courses on a regular basis. The St. Thomas charter vessels routinely go to the northern islands and dive at Thatch Cay, Congo Cay and Carval Rock. Many travel to the BVI's wreck of the *Rhone* once a week or in response to special requests.

After more than 20 years in the dive business, Chris Sawyer still holds true to the same principles that made him such a success on St. Thomas. He still works long hours, keeps the size of his groups small and communicates a strong sense of confidence and caring. Headquartered at the Compass Point Marina, the **CHRIS SAWYER DIVING CENTER** is within minutes of many hotels, including the **POINT PLEASANT RESORT**.

Sawyer stocked his second facility—at the **STOUFFER VIRGIN GRAND BEACH RESORT** on Smith Bay—with fashionable tropical wear as well as scuba and snorkeling gear. At the time of this writing, Sawyer was waiting for the delivery of his new 38 foot Delta to join his 42 foot *Fool's Gold*. Despite the large size of his boats, Chris will only take out a total of 20 divers; to Chris more boats mean being able to give more individual care.

Steve Simonsen has put together a professional video production studio for Sawyer. Guests of Chris Sawyer Diving Centers can have Steve shoot underwater portraits and/or custom VHS videotapes or enroll in one of his Nikonos photography classes (haven't you always wanted to try a 15mm lens?).

Everyday, even during the traditional slow season, when many island businesses close for vacation, one of **ST. THOMAS DIVING CLUB's** charter vessels pulls away from the dock at **BOLONGO BAY BEACH AND TENNIS CLUB**. **STDC's** pair of Deltas, *Diver I* and *Diver II*, head out for two tank trips at 9:00 am

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1800s. When you enter Colombian Emeralds' Main Street location to examine the gems and jewelry, notice the date over the door: 1855. The glittering diamonds and finely polished silver jewelry contrast with the rough textures of the old brick walls and arches. Throughout Charlotte Amalie you can find bargains on the latest fashions, jewelry, perfumes, crystal and liquor.

When you're not diving, dining or shopping, you might take advantage of the **MAHOGANY RUN** golf course, the tennis courts at Bolongo Bay Beach and Tennis Club or Frenchman's Reef Beach Resort or rent a car and drive up to Drake's Seat and Mountain Top for a spectacular view of Magens Bay in the British Virgin Islands. You can reach the BVI for a day trip by flying on a Virgin Islands Seaplane Shuttle or ride the regular ferry service to Tortola and Virgin Gorda, which leaves from Charlotte Amalie and Red Hook. Remember, if you enter the BVI, even just to dive on the wreck of the *Rhone*, you will need your U.S. passport.

After touring St. Thomas, should you decide you might want to purchase your

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and 2:00 pm. The NAUI and PADI instructors at STDC conduct resort courses and referrals for guests at the Bolongo Bay Beach and Tennis Club and LIMETREE BEACH HOTEL. Between owners Bill and Laurie Letts, and the friendly staff headed by general managers/captains Mickey and Cathy Lawlor, guests receive lots of attention. In conjunction with Bolongo Bay Beach and Tennis Club, STDC has arranged one package where guests spend part of the week enjoying the diving within easy reach of St. Thomas and part of the week aboard the *Mohawk II* touring St. John and the BVI.

It takes about five minutes for Julie Wank's dive boat, the 23 foot *Sh'Boogie* to exit AQUA ACTION's base at Secret Harbor and pull up to the Cow and Calf dive site. Aqua Action's store is nestled in the palms at the west end of Secret Harbor's white beach. It's a great location for Aqua Action's NAUI, PADI and SSI classes. In addition to scuba rental equipment, there are 110 and 35mm cameras and custom video programs.

SEA ADVENTURES, stationed at one of St. Thomas' largest resorts, FRENCHMAN'S REEF BEACH, operates one of

the island's largest fleets. In addition to its 40 foot, 25 passenger dive boat *Siren* and 26 foot, six passenger, *Lighting*, Sea Adventures charters sailboats, sunset and dinner cruises, island and BVI tours, parasailing and even offers car rentals. The *Siren* has a glass bottom to let non-divers see what we're down to. Sea Adventures can arrange packages for individuals and groups at Frenchman's Reef Beach Resort, BLUEBEARD'S CASTLE and WINDWARD PASSAGE.

When you are in Red Hook, drop by and chat with Dave Fredebaugh at CARIBBEAN DIVERS. After 18 years of diving off St. Thomas, he's got some engaging stories to share. He departs from his store, a PADI and SSI training facility, with a maximum of six divers on board his 20 foot *Different Drummer*. Come with nothing more than a C-card and Dave will outfit you with gear ranging from fins to 110 camera.

On the eastern end of Charlotte Amalie, in the RAMADA YACHT HAVEN HOTEL AND MARINA, is UNDERWATER SAFARIS OF ST. THOMAS. The well equipped store sits in the middle of one of the busiest yacht marinas on the island. Consequently, Underwater Safaris concentrates on outfitting motor and sailing yachts. It can set up a compressor or an instructor for any cruise. With the Ramada Yacht Haven Hotel U/W Safaris can also arrange land based diving packages.

On one hand, Joe Vogel of JOE VOGEL DIVING COMPANY specializes in escorting individuals and very small groups to the sites around St. Thomas. He has been teaching in St. Thomas since 1960. Debbie Powers Vogel is available to photograph Joe's clients as they explore the reefs. VIRGIN ISLAND DIVING SCHOOLS, on the other hand, works with very large numbers. Its niche seems to be turning big groups of cruise ship visitors onto the fun of scuba.

ST. THOMAS DIVING

It seems that St. Thomas is literally surrounded by good diving. West of Water Island, two islands provide colorful sites. At the shallow reefs around **Saba**, divers may see lobsters in the crevices. Since depths at many sites average less than 30 feet, this is a great beginner's reef.

Inshore from Saba, barely breaking the surface, is **Flat Cay**. Turn a light on the

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arches and large rock slabs and watch the colors pop. Even the broken wreck of a small schooner is covered in red, orange and yellow sponges. Pillar corals and elkhorn trees stand out in the shallows. This is a great spot for either wide angle or macro photography.

Little Buck Island, outside of St. Thomas Harbor, is home to the **Cartanser Sr.** and **Andre's Reef**. The **Cartanser** rests on the bottom of a protected cove in less

than 50 feet of water, but don't be surprised if you have to look through an excited school of yellowtail snapper to see the sunken ship; the snappers expect handouts from all divers. The 190 foot long wreck is one of St. Thomas' most requested dives.

Not far from the wreck, Andre's Reef slopes from 40 feet to around 80. Look between boulders for trumpetfish investigating the shadows for minnows. Rays often settle in the sand near the bottom of the slope.

Capella Island's sloping coral and rock reef descends from 35 to 80 feet. Small groupers come in to cleaning stations here. Look for Petersen's shrimp in the banded anemones.

Offshore Limetree Beach lie the **Twin Barges**. Best guesses estimate they were sunk in the late '40s. Because of their proximity to shore, visibility outside the wrecks averages 50 feet; inside the large rooms, clarity is much improved. X and V-shaped beams are handy frames for diver portraits.

Just outside Bolongo Bay and below the surface hides **Packet Rock**. It earned its name by claiming several old freighters and packet ships. Packet Rock never quite reaches the surface. Fire coral crowns the top. Dig in the sand near big boulders on the first shelf and you may find pottery shards, brass nails, clay

pipes or possibly a cannon ball. On the plateau at 42 feet, see if you can spot the circular lip of a large cauldron that has been completely overgrown.

Well offshore and southeast of Packet Rock, **Frenchcap Cay** stands barren and isolated. Only frigates, brown boobies and hardy grasses live on this craggy island. Many people returning from here report visibility exceeding 150 feet. The **Pinnacles** at Frenchcap are like the proverbial zoo; you never know what may swim through. You may see a small school of barracudas or jacks, a turtle, ray or maybe a nurse shark.

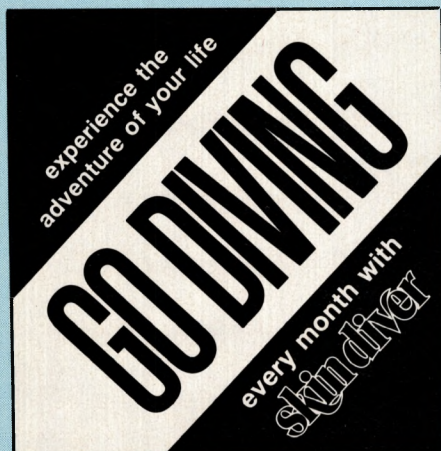
In the shallows on the western side of Frenchcap, you should dive **The Cathedral's**. Elkhorn trees grow in clusters in less than 20 feet of water. Huge rock boulders and slabs lean together to form vaulted passageways. Take your eyes off the colorful invertebrate growth adhering to the walls and turn your gaze upward. Most guests describe the light rays streaming down through the agitated surface water as majestic.

According to the stories, **Cow and Calf** was named by drunken sailors who mistook them for a female whale and her offspring one dark night. It's hard to imagine how many rations of rum those old seafarers must have imbibed, because in the bright Virgin Island sunlight these two chiseled outcroppings look anything but alive. Tunnels plastered with combinations of red, brown and yellow sponges and cup corals wind through the pinnacles. Silversided minnows can't be sure whether to be more wary of the divers or the prowling trumpetfish and small groupers. The surge in one shallow cave pops you through, as the Lawlors put it, like a champagne cork.

Around **Little Saint James** there are several interesting dives. One of Sawyer's favorite spots, on the sheltered side of Little Saint James, averages 40 feet in depth. Explore the ledges here and you may find some that extend back 12 or 15 feet! These deep recesses provide shelter for all kinds of fish such as schools of copper sweepers. Visibility is normally around 70 feet.

At anchor on the **Major General Rogers**, you can see the Stouffer Virgin Grand Beach Resort at Smith Bay. Depth on the sandy bottom by this 150 foot wreck is just shy of 80 feet. Fish, from amberjacks to flounders, visit the upright hull. In the protected corners, brown and white featherdusters grow as large as an adult's open hand.

Not sure where you want to go on your next vacation? The USVI provide the perfect solution. First rate resorts, internationally recognized fine dining, irresistible bargains, championship golf and tennis facilities, world-class beaches and outstanding diving—it is all here. If you want something more, just look around and you'll probably find everything that you need in the United States Virgin Islands. 



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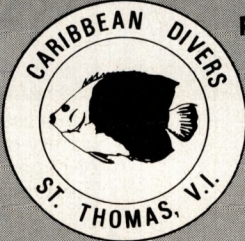
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TRAVEL

SAND DOLLAR CONDOS BONAIRE'S NEWEST DIVE RESORT

TEXT AND PHOTOGRAPHY
BY STEPHEN FRINK

A sure sign that the island of Bonaire has emerged as one of the world's favorite destinations for traveling divers is the increasing number of diving and lodging options available on this Western Caribbean wonderland just 50 miles north of Venezuela. The new addition to the Bonaire dive scene is the Sand Dollar Condominium and Beach Club. A dedicated dive resort on the leeward shore of the island, it is close to most of the famous dive sites.

At present, this beautiful development consists of 54 units configured as studio, one, two and three bedroom apartments. This creates a total of 250 beds and the potential for great economy for families or dive groups. For example, the three bedroom condominium has three bathrooms as well as a living room, spacious deck area overlooking the sea and a full kitchen. Even at high season rates (December 15 - April 15), if six people occupy this unit the cost per person breaks down to less than \$38 per day. For two couples, the two bedroom, two bath configuration would be ideal for only \$48 per person per night. April 16 through December 14 is considered low season on Bonaire and room rates are even less. When you consider the savings on food costs that might be realized by cooking some meals, there is a tremendous price incentive for the Sand Dollar condominiums.

While there may be economies in-
(Continued on Page 78)



Top: Sand Dollar Dive & Photo is on a stone platform that juts 65 feet into the sea in front of the Sand Dollar condominiums. **Right:** Interior of a Sand Dollar room. The 54 condo units are configured as studio, one, two and three bedroom apartments. **Below:** Andre Nahr and Barbara Doernbach at Twixt.



TRAVEL TIPS

Selecting A Dive Vacation

TEXT AND PHOTOGRAPHY BY GERI MURPHY

There are many different types of dive vacations distinguished by destination, travel distance, accommodations and diving activity. The following is a list of the six basic dive vacation types:

Domestic Dive Vacation: This is a trip taken somewhere within the boundaries of the continental U.S. It entails interstate or intrastate travel, usually by car, van or camper. Florida is the focal point for most domestic dive vacations because it offers clear, warm waters and living coral reefs. However, divers vacation in other areas of the U.S. where the water isn't as warm but the diving is just as adventurous.

Domestic vacations are still the most popular type of dive trip as they are often the least expensive and easiest to arrange. For some, it is simply a matter of hopping into the family car and driving down to the Keys for a long weekend.

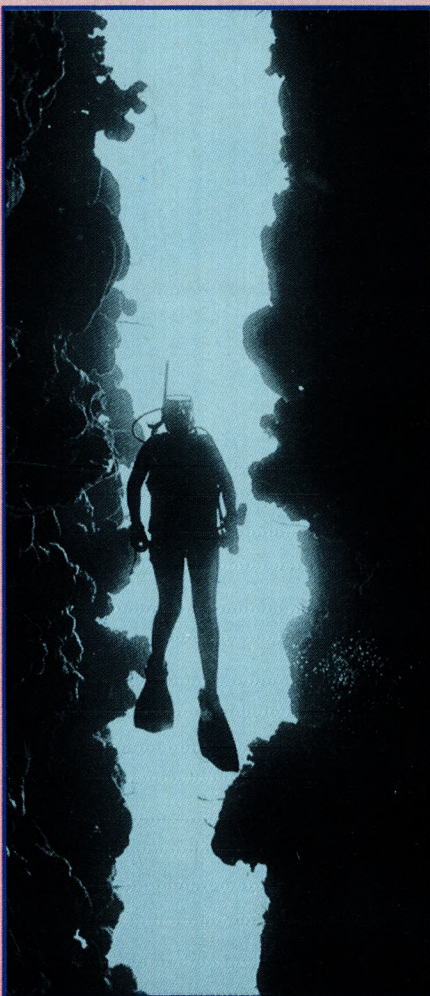
Overseas Dive Vacation: This is a trip taken somewhere outside the continental U.S. It usually involves air travel, but there are also many who drive to Mexico to enjoy the tropical waters and reefs of this country's nearby resorts.

It should be mentioned that many U.S. territories and one state are classified as overseas travel simply because they are separated from the mainland by the ocean. Hawaii, Guam, American Samoa, Puerto Rico and the U.S. Virgin Islands are all part of the U.S., but listed as overseas destinations.

Overseas travel is the fastest growing diving activity in America today. An estimated 60 percent of all active divers now take an overseas dive trip at least once a year.

Advanced Dive Vacation: This is a new and emerging class of travel, specifically designed for experienced divers. It entails more complicated travel arrangements—and sometimes more difficult diving conditions—but certainly offers more exciting adventures.

A good example of an advanced dive vacation would be a trip to the Solomon Islands. This entails three days of travel from the U.S. Accommodations are likely to be primitive, the dive boats are small, and anti-malaria pills are a must. Despite these difficulties, experienced travelers are willing to make the trip because the diving is absolutely superb. Such a vacation should not be attempted until the traveler has experienced five to seven normal overseas dive trips.



Dive Plus Vacation: This is a trip or destination that is just the opposite of an Advanced Dive Vacation. While the diving may be fair to good, the destination offers much more in the way of general vacation opportunities.

A good example of this might be St. Thomas in the U.S. Virgin Islands. This island may have no spectacular drop-offs but it does offer nondiving spouses, friends and family some of the finest free-

port shopping, sightseeing, sailing, beaches, restaurants, golf, tennis or nightclub shows in the Caribbean.

Dive Plus Vacations are well balanced to please both the diver and accompanying nondiver. They might involve a cruise ship tour of the Caribbean, with brief stops at islands where diving is possible. Or, they might just focus on a singular island that has diving plus a lot of other exciting attractions.

Exotic Dive Vacation: This is a very small (about two percent) portion of the dive travel business. It is very expensive and strictly for seasoned veterans. Exotic dive vacations often consist of customized safari style expeditions to remote corners of the world where a special type of dive experience can be encountered. A good example of the exotic dive vacation is the annual Great White Shark Expedition to Dangerous Reef, Australia.

Live-Aboard Boat Vacation: A rapidly growing type of dive vacation is a cruise on a live-aboard boat. For several days or weeks the ship becomes your floating, mobile hotel. Live-aboards offer twice as much diving per day and a more intimate environment for meeting people and making new friends.

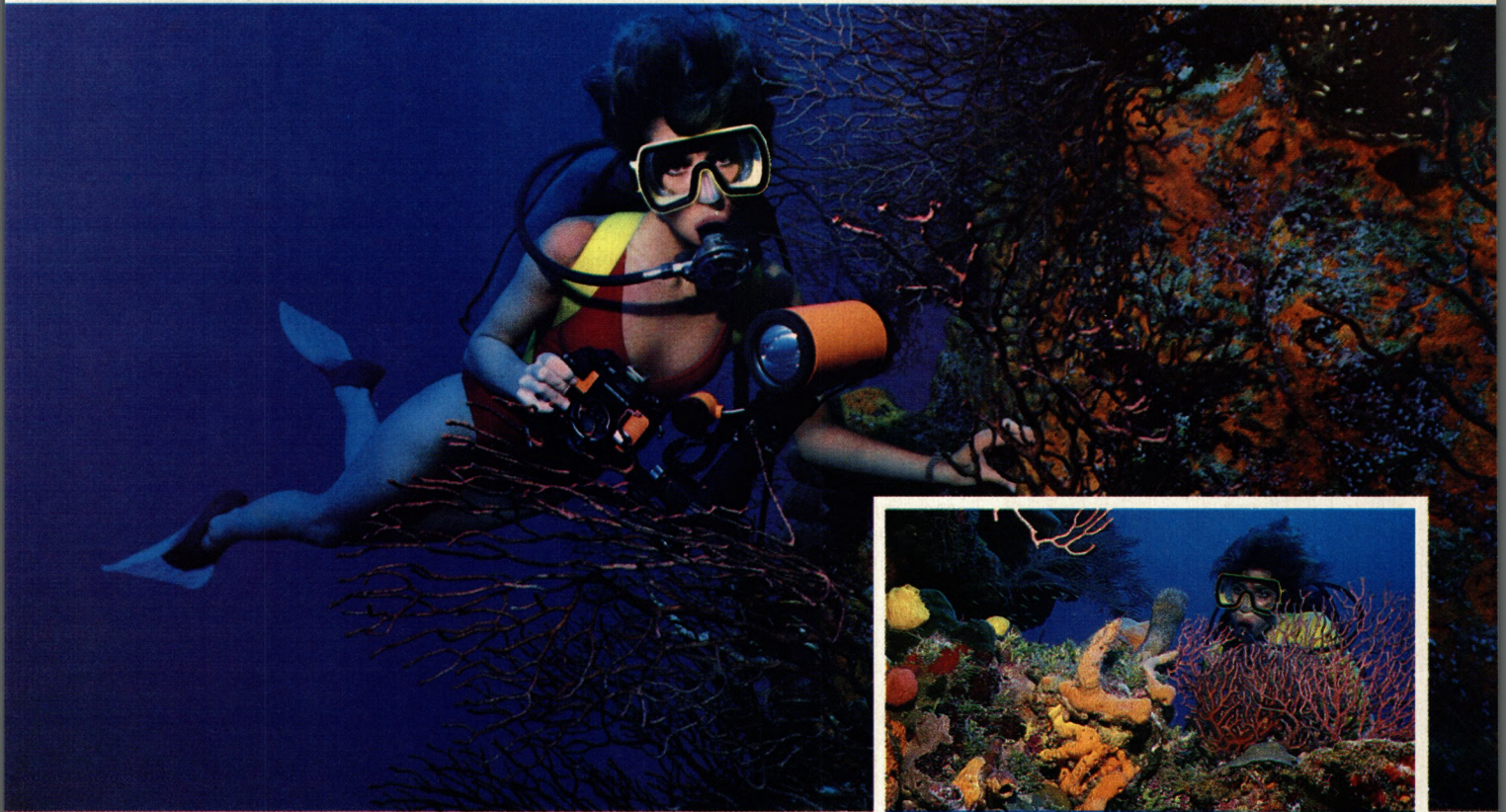
Live-aboard boats can be found in all areas of dive travel: domestic, overseas, advanced and exotic destinations. An estimated 15-20 percent of America's traveling divers now spend their vacations on such cruises. There are an estimated 75-100 live-aboard vessels now operating throughout the world.

Choosing the right kind of trip depends on your budget and your personal idea of a great adventure. Many beginning travelers start with a domestic dive vacation because it involves less expensive transportation (your own auto) and the environment is more familiar.

The obvious next step is an overseas trip to a nearby island, on what is called a dive vacation package. The package concept is a well organized, formatted vacation that usually includes hotel room and basic diving services at an attractive price. Some dive packages even include meals such as breakfast and dinner. A few even include round-trip air transportation to the island, but this type of package is becoming rarer. The important feature of the package concept is that much of the planning is already done for you, you need only go and enjoy. 

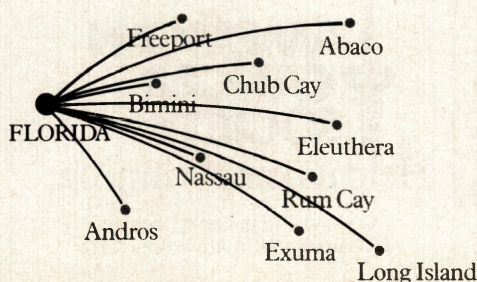
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SAND DOLLAR

(Continued from Page 75)

Involved, there is nothing about the Sand Dollar complex that implies austerity. The concrete block and stucco construction is both substantial and tasteful. Each of the units overlooks the Caribbean and Klein Bonaire from its own balcony or patio, and faces toward the north so as to maximize the cooling offshore breezes. Of course, these spacious condos feature air-conditioning as well, but most nights we preferred the breezes from the sea and ceiling fans. The interior floors are imported tiles from Holland and each unit has been professionally decorated to create a comfortably contemporary tropical ambience. Each condominium is completely furnished, including the dishes, pots, pans and coffee maker, as well as modern appliances such as stove, refrigerator and dishwasher.

It is interesting to note here that although each unit is equipped like a particularly comfortable home, the Sand Dollar management recognizes that their customers are on vacation and most of the domestic duties of the home should be left behind. To that end, Sand Dollar operates more like a fine hotel than a condo complex. Despite the full kitchen, there is an excellent restaurant on the property. There are even catering services available if you'd like the convenience of groceries in the condo but want to avoid the inconvenience of shopping. There is full maid service included, so even though the dishwasher might be convenient, the maids will clean up and do the dishes anyway. The maids will even do personal laundry if requested. There is baby-sitting, airline reconfirmation and most of the services you might associate with a resort hotel property. Perhaps of greatest convenience to traveling divers however, is the dive concession, Sand Dollar Dive and Photo.

Sand Dollar Dive and Photo is operated by Andre and Gabrielle Nahr, with the able assistance of Pam Teitel. Andre and Pam are PADI instructors and are well experienced in the Bonaire dive scene. I have known both for several years and view their involvement with the dive center as a vote of confidence in the professionalism of the operations. Andre was once employed as the photo pro at Habitat and brings not only dive operations skills to Sand Dollar, but considerable photographic expertise.

The dive center is very conveniently built on a stone platform that juts 65 feet into the sea in front of Sand Dollar. This unique construction creates a lower profile for the building so the view of the sea from the condominiums is not obscured. It creates a feeling of being close to the ocean, which in fact, is just steps away.

This space contributed as a public service.

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SAND DOLLAR

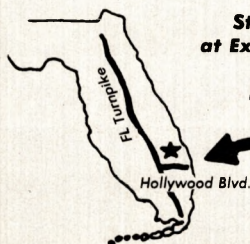
The additional advantage is that the water is 10 feet deep beneath the steps in front of the dive center. This is the ideal depth for easy resort course instruction and giant stride entries for an offshore dive.

The proximity of the Sand Dollar complex to Bonaire's exceptional diving is a special convenience, but it is also comforting to realize that a fine beach dive exists just offshore. The drop-off for Bari Reef in front of the property is only 40 yards to seaward; just a few fin strokes will bring the first of the coral heads into view. The main reef begins in about 20 feet of water and drops at a fairly precipitous 60 degree slope to about 125 feet. Among the high profile corals are scattered barrel sponges, orange elephant ear and massive purple tube sponges, schools of Atlantic oval squid, juvenile angelfish, goldentail morays, exceptionally large spotted morays and French angelfish so accustomed to human contact they will eat right out of the diver's hand. All of this exists in water with an average of 80-100 foot visibility. The Sand Dollar divemasters have been working with the octopus in the area, and have at least four lairs located so that octopus encounters can be predictably arranged most anytime.

The dive center shares the waterfront platform with the Green Parrot Restaurant, creating both a convenience factor for divers and a spectacular view for diners. The restaurant offers breakfast, lunch and dinner, as well as a fully stocked bar. Specialties of the house include one-half pound hamburgers, steaks and seafood and, especially, the excellent fresh fish of the day. There are lounge chairs at the water's edge and, at the sunset happy hour, this is one of the nicest places on the island to search for the elusive green flash (or brown flash when viewed through the bottom of an Amstel beer bottle).

The retail center for Sand Dollar Dive and Photo consists of a large selection of T-shirts, post cards and a selection of resort wear as you might expect of an island dive center, but additionally Sand Dollar Dive and Photo stocks regulators, masks, snorkels and other modern dive accessories. Photo services include daily E-6 film processing and rental camera and video systems. For still photography, Nikonos IV and V cameras with Helix and Nikonos strobes are available, as well as wide angle accessory lenses and extension tubes. Video enthusiasts can rent Sony 8mm Handycams in Aqua Vision housings and Andre will add a musical background and transfer the edited master to VHS. Every Wednesday night Andre offers a slide show demonstrating his talented vision of underwater Bonaire. Both structured photo instruction and less

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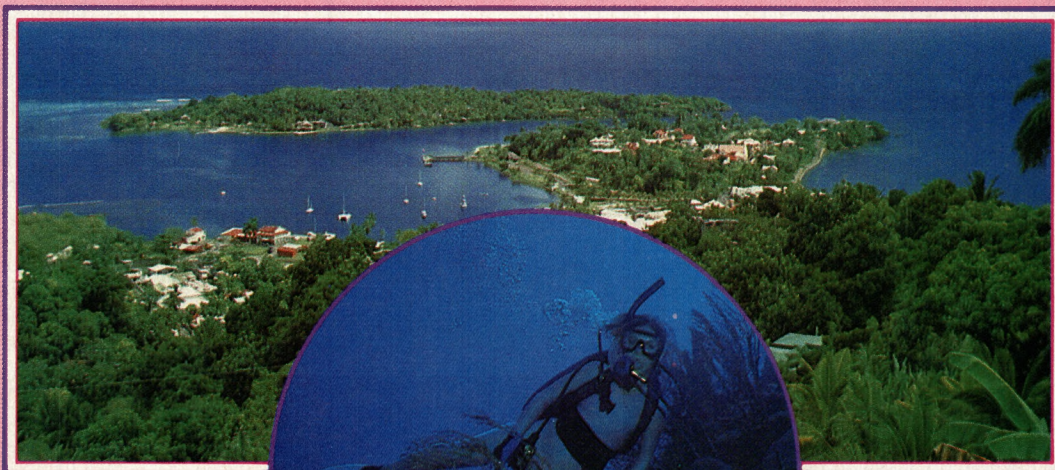
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SAND DOLLAR

formal photo coaching sessions may be arranged. In fact, the one service the photo and video enthusiast might find most appealing is the complimentary photo-buddy function the divemasters fulfill. Not only will they pass cameras to the divers in the water and ensure a freshwater rinse between dives, but the staff will help find the subjects to photograph and even serve as U/W models if that extra compositional element is necessary.

There is guest gear storage at the dive center, so personal camera gear is probably the only thing that will be carried back to the rooms daily. I found the tables and counters in the rooms especially convenient for camera maintenance. The air fills are handled by a pair of Bauer 15 cfm compressors with more than 16,000 cubic feet of storage. The tanks are neutral buoyancy aluminum cylinders, either 80, 65 or 50 cubic feet. The air fills, rental gear and retail counter are all dockside so when one of the three custom boats comes in to pick up the divers, the transfer of equipment to boats is hassle free.

While most dive sites are very near—with the closest point of Klein Bonaire only six minutes away—the Sand Dollar dive boats assure comfort enroute. The 30 foot *Sand Penny*, and the 36 foot *Sand Diver I* and *Sand Diver II* are fast V-hulls built in Venezuela and powered by twin outboards. The fleet is set up for diver convenience with tank compartments, dive ladder and Bimini top for protection from the sun. The normal dive schedule includes one tank morning and afternoon dives; as well as beach, Town Pier or boat night dives that can be arranged at any time. One of the special features of the six day dive package is the days need not be consecutive. Bonaire is an especially beautiful island and merits a day off for land exploration and beach diving. The Sand Dollar dive package is flexible enough to structure according to your own vacation schedule or may be booked à la carte as the whim strikes.

The Sand Dollar Condominium and Beach Club is a development conceived and executed by Sylvia and Milton Weisberg. After coming to Bonaire on vacation for 20 years, the Weisbergs knew what they wanted in a resort development and acquired nine acres of prime beach-front property to implement their dream. Their son and daughter-in-law, Gary and Myrna, got involved to handle the state-side reservation service through their in-house travel agency, the Travel Barn. The operation has become a very efficient family affair. By May 1988 a total of 84 units will have been built, some of which will be townhouses. At this point there will be 350 beds, as well as other amenities including a freshwater swimming pool, lighted tennis courts, a 6,000 square foot

The other side of Nassau.



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SAND DOLLAR

casino, conference center and shopping arcade. All new construction is on the periphery of the existing units, so there is never a feeling of vacationing in the midst of a construction zone.

Sand Dollar condos are available for purchase or short term vacation rentals. For further information, please contact Sand Dollar Condominium and Beach Club at 50 Georgetown Road, Bordentown, New Jersey 08505 or phone toll free (800) 345-0805. In New Jersey phone (609) 298-3844.

FREE COZUMEL DIVING INSURANCE

During 1988 all clients booking their Cozumel diving vacations through Tropical Adventures and diving with Dive Paradise will automatically receive, free of charge, a complete insurance package covering treatment for decompression related problems. Newly formed in Cozumel is Servicios de Seguridad Sub-Aquatica, a Mexican corporation with on-site medical facilities and personnel to treat scuba divers for decompression sickness. The insurance provides free of charge services such as marine ambulance, hyperbaric chamber use, doctors, tenders, nurses, oxygen and medicines related to chamber use.

These Cozumel facilities require support from the diving community. Tropical Adventures sends several thousand divers annually to Cozumel and has committed four percent of its Cozumel gross diving dollar volume toward supporting this on-site medical program. Current equipment includes a double-lock chamber with stainless steel plumbing and a 26 foot Chris Craft (Chevy 350 engine) with stretcher, first aid kits and oxygen. This boat will be patrolling the diving areas everyday. The chamber air source is a cascade system utilizing four storage tanks supplied by three compressors.

For further information contact Tropical Adventures Travel, 170 Denny Way, Seattle, WA 98109 or phone (800) 247-3483 or (206) 441-3483 (Washington residents).

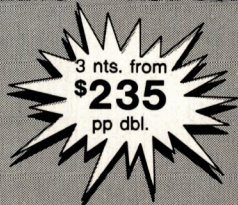
CAYMAN MARITIME AND TREASURE MUSEUM

There's more to do in the Cayman Islands than bask in the sun: Catch a glimpse of the past when pirates plundered and galleons laden with gold cruised the seas. Experience those days of old at the Cayman Maritime and Treasure Museum. Just minutes away from George Town on the waterfront, the museum features treasure and artifacts recovered from sunken ships as well as dioramas and hands-on displays depicting

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ing the history of maritime activity from the days of Columbus to the present.

Weaponry recovered from HMS *Thunderer*, a British warship that sank in 1780, is currently on display along with artifacts and jewelry from the *Nuestra Senora de la Maravilla*, the Spanish galleon rumored to have gone down with a \$1.6 billion cargo in 1656.

Many of the treasures on display were salvaged by Maritime Archaeological Recovery, Ltd., a Cayman based company owned and operated by Captain Herbert Humphreys, Jr. and Kem Jackson. There are ongoing expeditions and the museum will continually present new exhibits.

To acclimate visitors to the museum, there is an introductory audio/visual presentation. The tours are self-guided and follow a chronological pattern. The museum is open Monday through Saturday, 9:00 am-5:00 pm—\$5 admission fee for adults and \$3 for children. 🐠

NEPTUNO DIVERS COZUMEL

Neptuno Divers of Cozumel, Mexico has put together a dive/topside package. It includes four nights' accommodations at the hotel Meson San Miguel; three, two tank dives; one night dive; lunch on all day dives; 15 percent Mexican tax and unlimited free use of tanks. Also included is a 10 percent discount at Acuario Restaurant and entry to the Neptuno Disco.

For information call (800) 282-4198 then dial 4440 or call (800) 468-6224. In Florida call (813) 371-3196. In Texas call (713) 468-6211. 🐠

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Plantation Yacht Harbor Resort and Marina at Mile Marker 87 in the Florida Keys has opened Ocean Quest Dive Center. This is a full service facility with both the store and the boat on the resort premises. Diving services include: daily personalized charters aboard the *Ocean Express*, a USCG certified 18 passenger boat; lodging/dive packages; complete rentals; air fills; gear repairs; retail sales; and PADI courses including open water. Group rates are available.

Plantation Yacht Harbor Resort is on 57 acres by Florida Bay, just 15 minutes south of "downtown" Key Largo. On the premises services include spacious accommodations, a restaurant, lounge, large freshwater pool, sandy beach, lighted tennis courts, tiki bar, Jet Ski and Hobie Cat rentals, deepsea and back country fishing charters, barbecue facilities, full service marina and a relaxed, informal atmosphere.

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BONAIRE



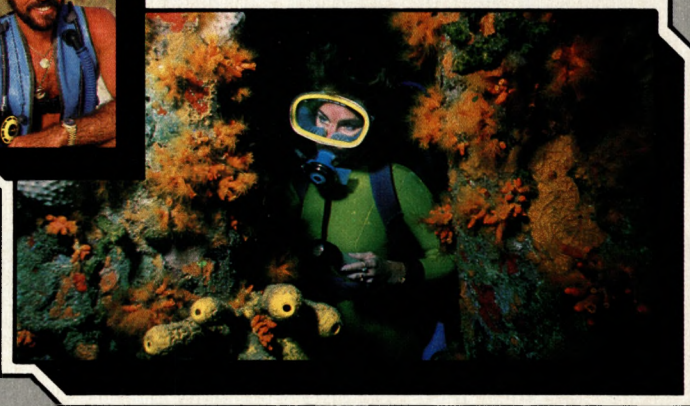
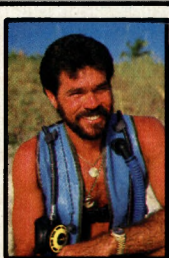
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THE HISTORIAN

SDM LOOKS BACK WITH
E.R. CROSS

THIRTY-FIVE YEARS AGO: JANUARY 1953

One year ago last month (December 1951) THE SKIN DIVER was launched expectantly by two skin diving enthusiasts, Jim Auxier and Chuck Blakeslee. The first issue carried only six small ads. The first 11 issues averaged only 16 pages each. But, Jim and Chuck persisted. (Later the magazine would be known as SKIN DIVER Magazine.)

The January 1953 issue of THE SKIN DIVER still boasted only 16 pages. But the ads had increased to 16 plus one full page ad by U.S. Divers (known as Renee Sports until March 1952), then on Broughton Avenue in Westwood Village, California. USD was the distributor for the almost unknown apparatus called the Aqua-Lung and other sport diving equipment. (U.S. Divers persisted and became a giant.)



Master Diver E.R. Cross was a lieutenant in the U.S. Navy, making his first dive in 1934. During his 19 years in the navy, he instructed in the Salvage School and worked on such sunken ships as the Normandie. Cross was also owner/director of the Sparling School of Deep Sea Diving.

What was happening in January 1953? Plenty! Barakuda, a Hamburg, Germany manufacturer of sport diving equipment, wrote to W.J. Voit Rubber Company in the U.S. suggesting that the two companies cooperate in having "fin swimming" made a "legitimate" sport in international competition. The Council of Diving Clubs in the United States and its German counterpart, Deutsche Unterwasser Club, exchanged ideas and plans. Italian and French dive companies were also to be involved. International diving competitions were born.

In California, prizes were awarded for winners in the Skin Diving Derby (a spearfishing contest) held in December

1952. Bill Brown of the Los Angeles Neptune won top men's honors. Kate Smith of Southern California Skin Divers and Dottie Fraser of the Long Beach Neptune won top female honors.

Bill Barada suggested it was time for sport divers to stop, take a look at the marine life in California waters and to evaluate the present and future impact sport diving activities might have on the "animals inhabiting this fairyland."

FIFTEEN YEARS AGO: JANUARY 1973

SKIN DIVER featured articles on diving the wrecks of the Atlantic and diving off Cabo San Lucas, Baja California; Ron Church reported on diving with some octopus, Captain Cousteau and the crew of the *Calypso*.



photo/Homer Lockwood

In this 1950s photo Bill Barada assists young Nancy Miller with her fins while Allen Miller and John Lockwood look on.

Vianne Weintraub reported on a dive made by 20 "tanked up" divers off Cozumel at midnight, New Year's Eve. At midnight all divers gave 12 loud bangs on their tanks with the butts of their knives. On signal, they all turned off their underwater lights. Vianne reported, "A real euphoria overtook us. High? Yes, but not from drinking or nitrogen narcosis; rather from the beauty of a world seen once again in a different medium. The U/W beauty, seen only by the light of a full moon at 70 feet in clear water, ushered in the New Year."

Everyone should re-read Bill Barada's *Radioactive Roulette* in that issue. Atomic power plants were having problems. Bill, in SKIN DIVER, predicted the things that are happening now with a forecast of worse to come.

Readers are invited to send information and photos relating to their diving activities of 35 and 15 years ago. Or, if you have questions about what happened in diving in any year, let us hear from you. Write to The Historian, c/o SKIN DIVER Magazine, 8490 Sunset Blvd., Los Angeles, CA 90069. ✕

TURKS & CAICOS

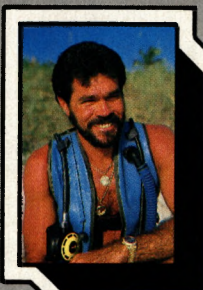
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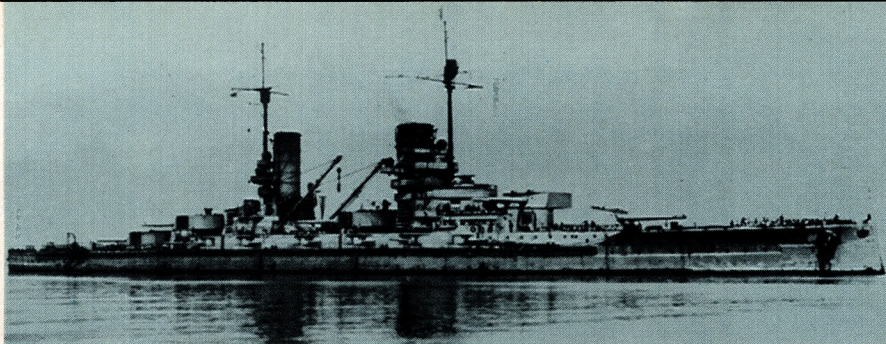


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A DIVE INTO NORTH SEA HISTORY

Violent World War Battles Created An Adventure
In Time Travel

TEXT AND PHOTOGRAPHY BY CRAIG MCLEAN

North of Scotland lie the Orkney Islands. Here, in the beauty of high temperate latitudes, is a large bay inhabited by a few herds of seals and thousands of roosting seabirds. This large bay is Scapa Flow, and it is also the resting place for the remains of Germany's High Seas Fleet of World War I.

For centuries, European trade routes have passed the northern coast of Scotland. Naval planners recognized the strategic importance of the Orkney Islands and the protected anchorage within Scapa Flow. When England entered World War I, it was logical for Scapa Flow to be designated as the home port of the Royal Navy's Grand Fleet.

During the early years of the war, naval engagements between Germany and Britain were limited. Despite the proximity of these two countries, both fleets were not in constant contact or battle. The Royal Navy began a blockade of the North Sea and the German High Seas Fleet was set back by early losses. The German naval effort was shifted from the capital ships to an intensified U-boat campaign against Allied shipping. The battleships and cruisers of the German fleet sat idle, frustrated by the domestic pressure to contribute to the war effort and to militarily justify their being.

To meet this challenge and draw out the British naval squadrons, the Germans

sailed north for action on May 31, 1916. Both fleets met near the Jutland Bank, west of Denmark. On this day the mightiest of battleships clashed in the classic sense. Admiral Jellicoe, in command of the Royal Navy Grand Fleet, successfully deployed his vessels to "cross the T" of the German battle line. Fierce exchanges of 10, 12 and 15 inch shells were made in the most punishing and brutal sea battle of modern history. Never before or since have fleets of massive battleships clashed as in the Battle of Jutland. Three British battlecruisers (similar in size to a battleship, but lighter and faster) were sunk with losses of more than 1,000 men per vessel. Two German giants were lost as well. The British supremacy in the North Sea continued and the German High Seas Fleet returned to port, where it stayed for the duration of the war.

The defeat of Germany resulted in a long process of negotiation with the Allies to determine the ultimate terms of peace and the disposition of the defeated nation. On November 9, 1918, the Armistice to end World War I dictated that the 74 German vessels of the High Seas Fleet were to be interned in a neutral or Allied port. For both political and military security, it was decided they would be brought to Scapa Flow. The huge veteran warships were now stripped of their munitions and made ready for internment. They sailed into Scapa Flow and set anchor in late November. With the postwar

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fate of those aboard uncertain, the ship's crews were reduced to a minimum; battleships would be manned by only 175 sailors, 200 for battlecruisers, 175 for light cruisers and 20 for destroyers.

In May 1919, the long negotiated peace conditions were announced. Germany would not be allowed to retain her fleet. Rather than losing ships to the victors, Rear Admiral Ludwig von Reuter made preparations to scuttle the entire fleet: 11 battleships, 5 battlecruisers, 8 light cruisers and 50 destroyers. Several weeks later, it appeared the German government would not accept the final terms of peace and that hostilities would resume (although this did not ultimately occur). Coinciding with the departure of the British fleet for maneuvers on June 21, 1919, the scuttle was accomplished. The German ensign was again raised above each of the 74 warships, which by now had begun to show signs of their neglect. Saltwater intakes and sea chests were smashed open and disabled in an attempt to prevent any undoing of the scuttle. The fleet began to sink.

With the British fleet away from Scapa Flow, few sailors of the Royal Navy were on hand to witness or influence the event except for a few armed small boat parties. On the battleship *Markgraf*, a boarding party ordered the captain to cease the sinking of his ship. When he refused he was shot and killed, as were several German sailors who refused to do the same on other vessels. (Today, these few casualties of the greatest sea scuttle in modern history are buried in a corner of the Royal Naval Cemetery at Lyness, Orkney Islands.) By the end of the day, 52 of the 74 ships had been sunk. Only 22 had been beached or saved by the British boarding parties.

A Royal Navy salvage team arrived to recover those ships either beached or sunk in shallow water. Their efforts, while successful, were soon ended with the proclamation that capital ships would remain unsalvaged owing to their depth.

As the navy departed, several small salvage syndicates engaged in the recovery of a number of the remaining destroyers. By 1924, the firm of Cox and Danks had begun the salvage of 25 destroyers using an ex-German floating dock (which ironically was surrendered by Germany in partial retribution for having scuttled the High Seas Fleet) to winch up the hulls from the bottom. Cox and Danks also pioneered the technique of fitting air locks to the inverted hulls and floating them by filling with compressed air. These air locks, installed by hardhat divers, allowed the interior spaces to be air filled and workmen to remain under pressure, yet dry, during the salvage work. The 22,640 ton battlecruiser *Moltke* was the largest vessel that had ever been raised from depth (70 feet) by this method. But this accomplishment was to be surpassed in a few years. Cox and Danks left Scapa Flow after salvaging 32 ships, among them sev-

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NORTH SEA HISTORY

eral capital ships.

Metal Industries Ltd. bought out the interests of Cox and Danks and began the deepwater salvage of six of the ships. Their greatest accomplishment was the refloating of the *Derfflinger*, a 28,000 ton battlecruiser, from more than 25 fathoms. It required air locks 130 feet in length. The complexity of such an operation can be appreciated by realizing that most of the capital ships sunk in deep water had turned turtle, leaving their hulls facing the surface. Cutting through the bottom, rigging the airlocks and working both wet and dry inside the wrecks required



First page: *König*. Above: WW I wreckage.

months of dangerous and heavy work by divers and salvors.

The *Derfflinger* was the last ship of the German fleet to be raised from Scapa Flow. This occurred in July 1939. All commercial salvage activities were terminated at this time when England had to face Germany again in war. And, again, Scapa Flow would play a major role supporting a more modern British fleet.

Today there are seven ships remaining from the German High Seas Fleet at the bottom of Scapa Flow. Three are battle-ships of the *König* class: *König*, *Markgraf* and *Kronprinz Wilhelm*. Three are light cruisers—*Dresden*, *Karlsruhe* and *Köln*—and one is a mine-laying cruiser, *Brummer*. Two German submarines from World War I lie in Scapa Flow, victims of unsuccessful raids on the British fleet. The British battleship HMS *Vanguard* suffered a magazine explosion at anchor in 1917 and went immediately to the bottom with 800 men.

World War II contributed to the wreck list. The daring attack by Gunther Prien and the *U-47* left the HMS *Royal Oak* in flames. She sank rapidly, with a loss of 800 men, just a little more than one month after the war began.

A dive in Scapa Flow today is an adventure in time travel. Stone houses and cobblestone streets fill the busy waterfront of Stromness, a beautiful village at the water's edge. The historic streets are narrow and could easily be the setting for a Charles Dickens novel. The waterfront of Stromness is a flurry of fishing vessels and inter-island ferries.

A DIVE

It is only 8:00 am, but since this is summer, the sun has already been up for five hours. In these northern latitudes, we experience nearly perpetual daylight. Our dive boat is the *Crombie*, skippered by John Thornton. John has been diving the Scapa Flow wrecks for more than 10 years and has a thorough knowledge of them. He also has the ship's bell from the battleship and former fleet flagship, *Fredrich der Grosse*.

We have visited each of the German battleships and cruisers of Scapa Flow in two, one week trips. Today we shall return to the SMS *Brummer*, a fast mine-laying cruiser of the Bremse class. She is 462 feet long, 44 feet in beam and displaced 4,308 tons afloat. The *Brummer*,



Remains of the ammunition wharf, Lyness.

as do the other cruisers in Scapa Flow, lies intact on her side, fully exposing her entire profile. This allows easy exploration of her bridge, superstructure and deck guns as well as access into the hull.

In contrast to the cruisers, the battleships, also intact, are upside down. Their bridges and superstructures are buried in the sediment. Captain Thornton reports that some of these interior spaces can be explored by experienced wreck divers, as they are not sand filled. These ships are great in mass and dimension. They are all Konig class battleships; 575 feet long, 97 feet in beam and displaced 25,388 tons.

As the *Crombie* clears Stromness harbor, we head south for the open flow, passing the now familiar sights of observant gray seals and an occasional group of dolphins.

Barely more than an hour after leaving the pier, we are at the dive site. As expected, the surface conditions are good. Scapa Flow is well protected. Though the weather can quickly change from clouds and rain to bright sunshine, it takes more than 40 knots of wind to ruin a day's diving aboard the *Crombie*.

The buoy marking the wreck is abeam of us as we enter the water. Thornton does not anchor or grapple the wreck, since a diver may surface anywhere along the 462 feet of wreckage. He likes to float free to pick up each diver wherever he/she surfaces, and we adapted easily to this technique. His professionalism and competence are apparent.

(Continued on Page 96)

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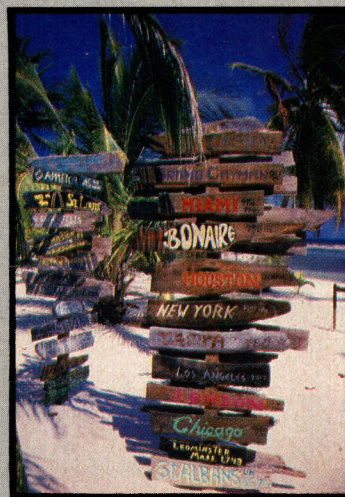
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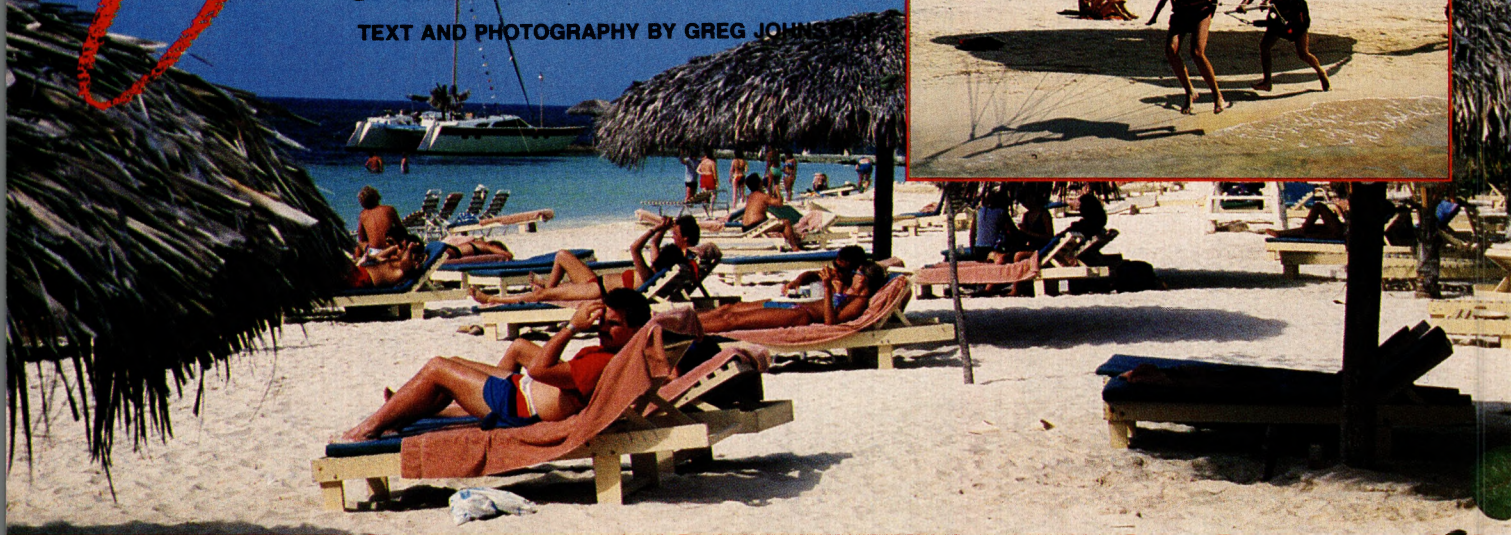
Peter Hughes Diving

Jamaica

OVERVIEW

A NEW LOOK AT A TRADITIONAL CARIBBEAN PARADISE

TEXT AND PHOTOGRAPHY BY GREG JOHNS



"Soon come," is a lyrical phrase that, at times, is spoken with a musical cadence, and often associated as a way of life in Jamaica. The ambiance of this island paradise is calm, the people are friendly and the lifestyle relaxed. Traditionally, the songs speak of romance, broken hearts and the natural beauty of this island in the sun. It seems a test of one's own anxiety level to enjoy a week's vacation in Jamaica: You quickly realize that everything in life will soon come.

Standing on the beach near Runaway Bay on Jamaica's north coast, dive bag in one hand, camera in the other, I asked our dive guide where the boat might be. "Soon come, soon mon," he replied. I could feel a slight smile cross my face and I decided not to pursue the question further, accepting his answer. A few moments later, the dive boat appeared. Painted on the side of the vessel in bright red letters was its name—*Soon Come!* It was the start of a very enjoyable Jamaican dive adventure.

Jamaica is the largest English speaking island and the third largest of the Caribbean nations. When Christopher Co-

Jamaica's north coast beaches offer a multitude of topside activities including parasailing and soaking up sunshine. Left: Purple tube sponges at Ricky's Reef.



Rich in culture and history, Jamaica's attractions include natural wonders and famous buildings. Above left: Dunn's River Falls. Above right: Rose Hall, a Jamaican landmark—where ghosts are said to roam. Below: Rafting on the Martha Brae River.



lumbus landed here on his second voyage in 1494, he proclaimed it "the fairest isle eyes have ever seen." This is often repeated today by even the most well traveled visitor. The seas that wash Jamaica's shores are warm and clear, the views along the coast are magnificent.

From deep within the interior the verdant mountains rise more than 7,000 feet and seem to almost touch the sky. The rain forests of hardwood and exotic trees and dense jungle vegetation are severed only by the mountain rivers that tumble down the rolling hills, creating waterfalls of several hundred feet. Many of the central mountain range inhabitants are steeped in the voodoo rites of their antiquity, while the rest of the island is spiced with the sounds of calypso, the rhythm of reggae and the beat of the limbo.

Approximately 700 miles southeast of Miami, Jamaica caters to visitors with a taste of the past and the flavor of the present. Having rebounded from political turmoil Jamaica has, for many years, enjoyed a prosperous tourist trade. Presently, the American dollar converts to about \$5.50 Jamaican dollars, making this one of the best bargain dive destinations in the Caribbean. From the rugged coastline of Ocho Rios to the white sandy beaches of Negril, Jamaica's north coast offers a diversity of hotels ranging from international resorts to small family style inns. And, most of them offer diving packages

among many vacation attractions.

At Montego Bay, Jamaica's second city and premier tourist resort, the Donald Sangster International Airport is a busy center for commercial airlines. Many flights from connecting gateway cities in Canada and the U.S. serve the airport daily. Our Air Jamaica flight from Miami was a smooth one and took only 30 minutes, with Jamaican immigration quick and easy. However, it is advisable for photographers to declare their equipment with customs as some restrictions do exist. But, restrictions are mostly on the amount of Jamaican currency carried when leaving the country.

Montego Bay is a busy seaport, with bananas the primary export. Prior to bananas, Montego Bay's main industry was sugar cane, evidenced by the centuries old plantations that still exist atop the rolling hills, looking toward the sea. In recent years the canefields have been ploughed to make way for hotels and urban growth. Two of the old magnificent homes—the Greenwood Great House and Rose Hall—remain as tourist attractions. Rose Hall is the most famous house in Jamaica because it was once owned by an authentic "witch." Anne Palmer, who practiced Haitian voodoo, had many husbands and lovers. When she tired of them, she would brutally kill them. Her slaves killed her one night and it is said her ghost still haunts the corridors of the great house.

The Montego Bay area offers a variety of diversions including superb golfing, horseback riding, fine restaurants and inexpensive bazaar shopping. Not far from the busy center of Montego Bay is a picturesque river that has become a trademark for tourism in Jamaica. The Martha Brae is a winding shallow waterway navigated daily by many visitors on long, slender bamboo rafts. Accompanied by a quartet of singing musicians, you will relax to the beat of "every little t'ing's gona be all right."

As diverse as Montego Bay is topside, underwater the sights will astound you. The old Airport Reef is perhaps one of the best dive sites on the island. Near the end of the runway, it offers huge coral caves that penetrate the reef mass and exit on the plunging wall. Tunnels and canyons are common throughout the reef, and tropical fish parade along the sloping coral heads.

At Point Reef, the wall drops vertically from a depth of 65 feet to more than 300. The wall is interspersed with forests of black coral and giant tube sponges that hang precariously from their perches.

Widowmakers Cave is one of the most exciting dives and, while I can't quite figure out the relationship to its name, it is easy to navigate. You penetrate the cave at 90 feet and rise through a vertical shaft of coral laced with sponges of a delicate hue to the top of the reef in 30 feet. Other well dived sites include the Giant Pillar Coral Reef, Canyon and Chimney and Chub Reef, where you can be immersed in a feeding frenzy of Bermuda chubs.

Along the north coast, the area between Montego Bay and Ocho Rios is not protected from the prevailing trade winds. Therefore, the best times to dive this area are often during the summer months when the weather is more predictable. Visibility often exceeds 100 feet and some of the best diving can be found along the road to Ocho Rios.

Ocho Rios, including the Runaway Bay and Discovery Bay areas, offers some of the loveliest parts of Jamaica. It would appear that Mother Nature cast a magical spell, adding little touches of rare beauty. Once a sleepy banana and fishing port, today it is one of the island's favorite resort locations—easy to tour and the cruise ship capital of Jamaica.

Cascades and waterfalls abound in and around Ocho Rios. Considered a geological phenomenon, perhaps the most famous is the Dunn's River Falls. Surrounded by flowers and ferns, shrouded by tall whispering coconut palms, it is a jungle setting complete with tropical birds singing their enchanting tunes. Cold, milky white water splashes over 600 feet of tiered limestone rocks onto the beach and into an incredibly blue sea. Tourists, as well as locals, come to the famous falls to relax and play in the cool waters that are said to have



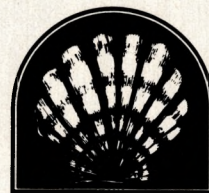
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(Continued on Page 114)



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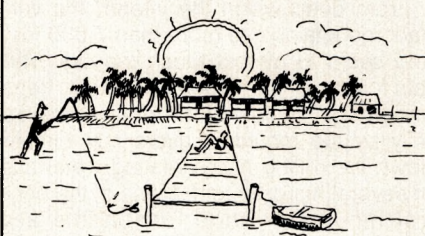
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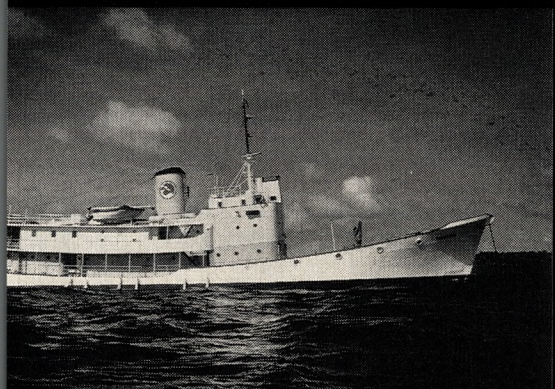
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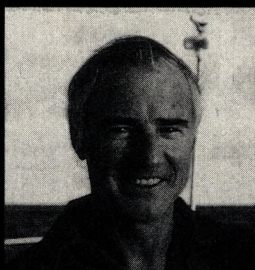
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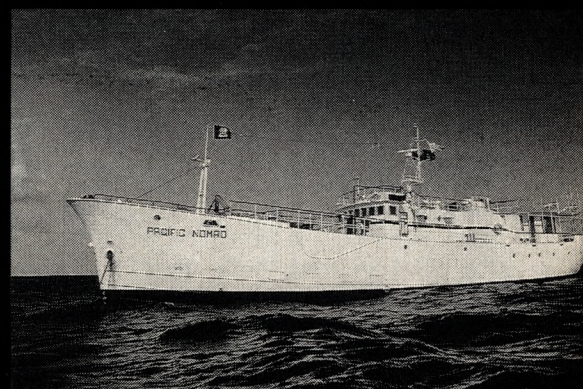


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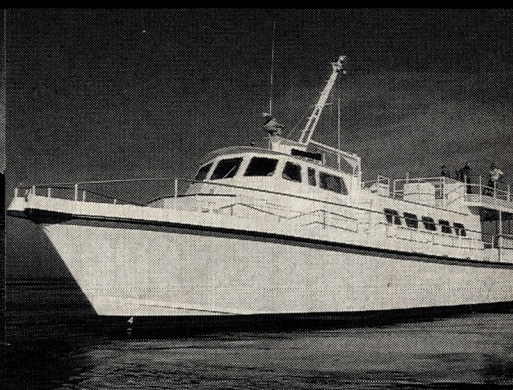
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NORTH SEA HISTORY

(Continued from Page 91)

I enter the water with Ray Meenan and plenty of camera equipment. We plan to rendezvous with another team led by Mike Mongillo. He is about 15 minutes behind us and plans to go to the bottom at about 110 feet to look for artifacts in the sediment. After photographing the wreck exterior, we will join Mike for some diver shots.

We begin our descent through 50 foot visibility along the buoy line. Through the clear green water a dark shadow develops before us like a black and white image on a darkroom print. The buoy line is set just forward of the bridge, allowing us to easily become oriented to the 90 degree list of the vessel. We join the wreck at the hull, along the main deck. We check our cameras and air and depart for the short swim forward to the 5.9 inch gun on the bow.

The guns are complete and are constant reminders of the duty once required of these vessels.

From the gun we descend into the hull through an open deck hatch. We can easily recognize the mechanism for the anchor windlass directly above us on the main deck. We are in the forward machine shop. A vice is still mounted atop a



An open door on the *Brummer* beckons.

bench in front of us, looking much newer than it is.

We swim aft beneath the main or gun deck. We pass through what seem to be empty spaces, the living quarters of the crew. These have either been stripped clean by early salvors or the contents removed by the crew during internment.

We emerge into open water at the base of the towering bridge, looming off to our left as the wreck rests on her starboard beam. Passing the iron work, which freely supported the bridge from the main deck, we enter the navigation bridge and observe the remains of the mounting structures of the telegraphs and helm, not long since removed. (Some artifacts have found their way to the Stromness Muse-

um and other public displays in Orkney; others are, by now, far from Scapa Flow). Forward of the navigation bridge is the battle bridge, totally encased in 3.9 inch steel. Only the long, thin observation slits are visible from the outside of this flat cylinder from which the conning officer would direct the ship during battle.

Beyond the bridge is the mast, resting intact on the seabed with the gunnery ranging device and search/signal lamps in place. The rigging and crow's nest seem permanently fixed in place. Only the glass elements of the signal light have been upset. Farther aft, we again explore the interior spaces, finding the coal chute and bunker access, ladders to the engine spaces and what appears to be a paint and spare parts locker. The contents are in excellent condition after 67 years U/W.

Our time is beginning to approach our planned departure. Mike and his group have been on the wreck for 15 minutes now and we see their bubbles in the distance of the bridge shadow. After a few exchanges of hand signals and photographs we leave the bottom with mental and photographic images of a magnificent and complete shipwreck. All of these wrecks, participants in such violent historical battles, offer patient historical instruction and excitement to every diver who ventures to this place. And, it is only this place where this kind of history abounds. 

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Photo by B. Bowdy

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Dateline Micronesia

A Galaxy Of Pacific Islands

TEXT AND PHOTOGRAPHY BY GERI MURPHY

If you were to follow the setting sun 14,000 miles southwest from the California coast, you would come upon an area of the western Pacific Ocean known as Micronesia. It is a world so vast in size it boggles the imagination. Its boundaries encompass three million square miles of ocean, an area the size of the entire United States. It contains 2,100 small islands—more than the Bahamas and Caribbean combined—yet less than 100 islands are inhabited.

While the people of Micronesia stem from one common heritage, the great distances separating their island communities have caused them to evolve into dozens of different cultures and languages. It is fascinating to travel among these islands, meet the local residents and learn their unique customs.

The islands of Micronesia have felt the influence of Western culture in just the last two centuries. They were originally discovered and colonized by the Spanish conquistadors. At the turn of the century, the area fell under the rule of the German Empire. At the end of World War I, the islands were subsequently occupied and developed by the Japanese. During World War II, the islands were a major battle ground for Japanese and allied forces. After the war, the United Nations assigned administration of these islands to the U.S.

Today, the islands of Micronesia are developing into independent nations. They have set up their own governments, conduct elections and are developing a fishing industry. Most of the islanders speak English as well as their own island dialect. A network of U.S. post offices has made it amazingly easy to communicate with America. Small hotels and tropical resorts are beginning to develop on many of the islands as Micronesia discovers the early beginnings of tourism. Yet, progress is slow and

controlled. The islanders do not wish to have their culture destroyed nor their islands polluted.

Perhaps the most important link among the islands of this vast oceanic domain is Air Micronesia, a Pacific airline subsidiary of Continental Airlines. Nicknamed Air Mike, this small but efficient airline operates two specially equipped 727 jets among some 10 different islands on the Micronesia route. We will follow Air Mike along its route from Honolulu and take a brief look at each stop along the way.

MAJURO

Majuro is the first island stop in Micronesia. It is just over the International Date Line. This is where the day begins and it is, therefore, one day ahead of Honolulu. Majuro is part of the Marshall Islands, one of the four major archipelagos of Micronesia. Marshall Islanders are renowned for their ability to sail outrigger canoes thousands of miles across

open ocean without using a compass.

Majuro is still in its early development stage, with several small hotels. Yet, it is a beautiful area for coral reef diving, shell collecting and snorkeling. Majuro is a true atoll, with a 22 mile long lagoon ringed by a collection of flat coral islands. The highest point on these islands is a palm tree.

The waters within Majuro lagoon are filled with a marvelous array of living corals, tropical reef fish and other exotic marine life. It is a veritable wonderland for the snorkeler, casual diver or underwater photographer. Diving services are available through the hotel and are conducted in small boats.

KWAJALEIN

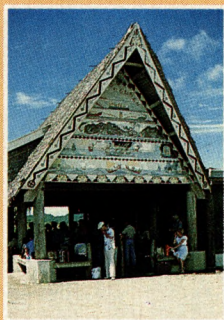
Also in the Marshall Islands, Kwajalein is one of the great shipwreck lagoons of the Pacific. It was the site of a major battle during WW II. Kwajalein is one of the largest atolls in the world with a circumference of 190 miles. There are 25

Micronesia's boundaries encompass 2,100 islands. Background: Truk. Below: Guam.





Majuro



Palau



Continental Air Micronesia

known shipwrecks at the bottom of this lagoon and there may possibly be more.

At present, Kwajalein is a restricted military area and therefore off limits to tourists. Air Mike stops at this island to refuel and board military cleared personnel. The island is part of the Kwajalein Missile Range, the target zone for long range missiles that are fired from California. Hopefully, Kwajalein will be able to open its doors to visitors someday.

POHNPEI

In contrast to the flat coral islands of the Marshalls, Pohnpei (or Ponape) is a volcanic island with high mountains covered by lush green jungle. It is part of the Eastern Caroline Islands archipelago and far different in culture. Pohnpei is much more developed and contains almost a dozen small hotels and tropical resorts. Some of the nicest are perched on the sides of the mountains with a magnificent view of the lagoon and barrier reef below.

Sightseeing and handicrafts shopping

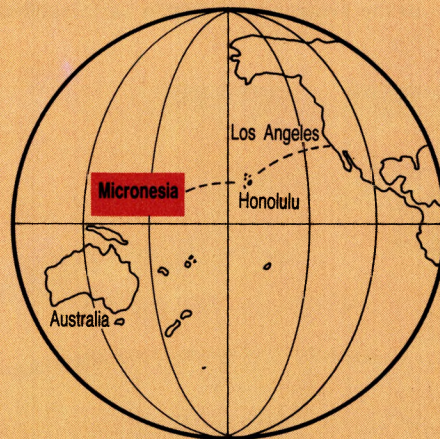
are particularly good in Pohnpei. The main village of Kolonia is fascinating and the island sites include a beautiful, natural waterfall and the mysterious lost city of Nan Madol. Built at the edge of the barrier reef, this ancient city of an unknown culture is comprised of stone islands constructed of ten ton basalt logs with water canals in between.

The diving around Pohnpei is quite good. There are lovely coral gardens—perfect for snorkeling—inside the shallow lagoon. On the outside of the barrier reef there are vertical coral drop-offs that afford spectacular diving in crystal clear water. Diving services are well organized and the boats are fair sized.

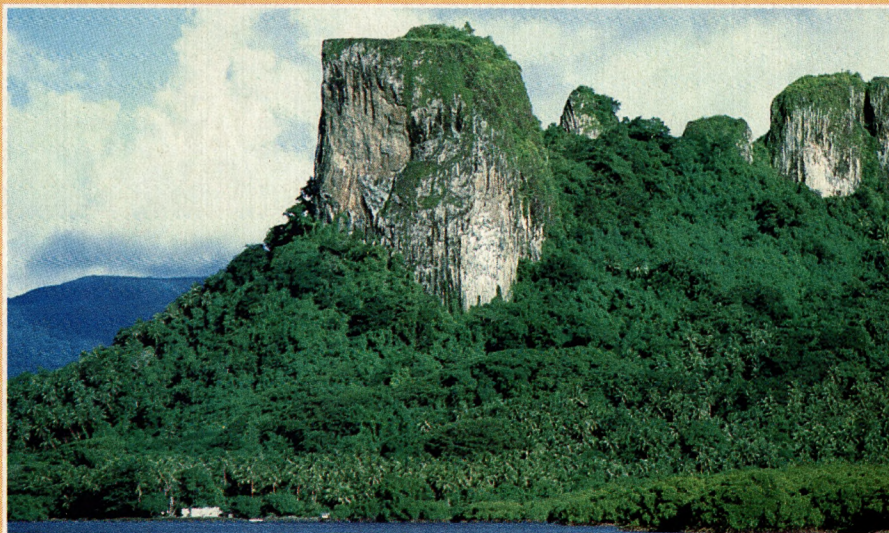
TRUK LAGOON

For divers, Truk has been the superstar of Micronesia. Also part of the Eastern Caroline Islands, this lagoon is 40 miles in diameter and reaches depths to 300 feet. Within the lagoon are one-half dozen

(Continued on Page 120)



Four thousand miles west of California, Micronesia is easily reached via Air Micronesia, a subsidiary of Continental, which operates among 10 islands in the area.



The islands of Micronesia are varied in culture and topography. U/W, each offers unique attractions. There are wrecks, coral gardens, walls, caves and colorful fish. Above: Pohnpei. Right: Palau. Far right: Pohnpei.



Little Cayman Diver was designed and scrupulously built for divers by divers to operate around the incredibly pristine reefs of Little Cayman Island. The vessel's host of convenient features includes a wide open aft deck, camera work table and freshwater rinse, individual gear lockers and upper sundeck. Right: Divers and tube sponges at Bloody Bay Wall. Below: *Little Cayman Diver's* dive platform. Bottom left: Diver and Nassau grouper. Bottom right: One of the live-aboard's double berth cabins.



photo/Bob Bowdey



Incredible! Absolutely incredible. After my first dive on Bloody Bay Wall along Little Cayman's north coast, I felt at a loss for words. I am not sure if I could accurately describe the wall dive, it was truly a mind boggling experience. The reefs around Little Cayman have always been compared to the exotic reefs of the South Pacific and the Red Sea and considered by most as high on the list of the top ten dive destinations in the world. I had heard of the spectacular wall, which begins as shallow as 20 feet and drops vertically for more than 6,000, for many years. Other well traveled divers have tried to explain their experiences, but nothing I had ever read fully prepared me for the overwhelming exhilaration of soaring along the sheer undersea cliff.

We were already preparing for our second dive when Captain Bob Bowdey joined the dive group—he would lead us through a coral tunnel in the reef structure. The visibility along the top of the wall exceeded 200 feet and the warm, 85°F water was comfortably inviting. I followed

Bob under a ledge and around a sharp bend in an almost perfectly round tunnel. At 90 feet, we exited over the wall through a large framed opening of deep-water gorgonians. At 100 feet, there was no ledge or platform, the wall dropped vertically for as far as the eye could see. All along the wall giant tube sponges of gold and lavender hung motionless. Neon green wire sponges writhed from the wall while huge basket sponges appeared to be ready to topple over. For an U/W photographer, it was a dream come true! I squeezed off the last frame of film in my Nikonos long before my dive was over. At that point I decided to start toward the surface for fear something exciting might happen and I'd be out of film.

It did! Three large eagle rays in tight pyramid formation passed below our fins. They turned slowly, then glided back toward us, passing only a few feet away. I usually try to keep at least one unexposed frame for the return swim to the boat for this exact reason. However, I wasn't too disappointed. After all, we

would be anchored above the wall for the remainder of the week aboard the *Little Cayman Diver*.

The *Little Cayman Diver* is a gleaming white, first class, modern live-aboard boat operating in the Cayman Islands. A 65 foot custom designed vessel, it has more than enough features to make your dive vacation memorable.

Owned and operated by Winston and Denise McDermot, the *Little Cayman Diver* is a dream that took nearly 18 years to bring to fruition. The McDermots have operated Brac Aquatics (now at the Brac Reef Beach Resort) for the past 12 years, always planning a modern live-aboard. Today, the dream is reality; the *Little Cayman Diver* was designed and scrupulously built for divers by divers to operate around the incredibly pristine reefs of Little Cayman Island.

The odyssey begins each Sunday at modern docking facilities on Cayman Brac. A one hour flight from Miami to Grand Cayman aboard a Cayman Airways jet sets the mood for a tropical vacation. Free rum punch is served as you board the plane and calypso music sets the beat for a well pampered flight. After arriving in Grand Cayman, a short commuter flight to Cayman Brac is easily made. The crew will greet you at the Cayman Brac airport and take you and your equipment to the *Little Cayman Diver*.

Looking more like a millionaire's personal yacht, first appearances may suggest the *Little Cayman Diver* is small by live-aboard standards. Nothing could be farther from the truth. Her well designed deck space makes her one of the roomiest live-aboards I have been on. The aft section of the boat has more than 400 square feet of surface area for lounging or preparing for your dive. A camera work table is set up in the center, as is a freshwater rinse tank for cameras after the dive. Individual lockers are found under the comfortable seats that form the stern rail section. As you walk forward, additional lockers can be found along the side of the main lounge and the bow is perfect for getting away to enjoy the sun and catch up on your reading.

The large upper sundeck, with its comfortable lounging chairs, forms the roof of the main saloon, dining room and galley—where cook Judy Beatty creates some exquisite gourmet meals. The main saloon and the fore and aft sleeping quarters, below deck, are all fully air-conditioned with individual controls. The 16 passenger, four crew vessel has four cabins forward and four aft. All have port-holes, an upper single bunk and a lower double, vanity with sink and a closet. The lower bunk lifts up to create a large storage bin to stow suitcases, gear bags and camera cases. There is a freshwater shower and head between each two ad-



photo Bob Bowdey



Top: The 65 foot custom live-aboard *Little Cayman Diver*. Counterclockwise from above right: Bob Bowdey, captain of the vessel; Winston McDermot, its owner; Cayman Airways jetliner; Cayman Airways commuter plane. *Little Cayman Diver* is the culmination of Winston and Denise McDermot's 18 year dream.

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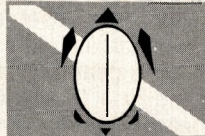
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The *Little Cayman Diver* travels from Cayman Brac to Little Cayman Island in less than 90 minutes. For six days and nights we dived some of the most fabulous reef structures in the world. This year shorter, four and five day trips will be available for groups who may prefer to charter a long weekend.

Diving from the *Little Cayman Diver* is easy. The large dive platform measures 20 by 8 feet and the tank rack system is unique among live-aboards. Mounted to the transom at the stern of the boat, where the dive platform is secured, is a 20 foot wide rack filled with new aluminum 80 tanks. What this means is that valuable deck space is not used for tank storage. Your BC and regulator remain attached to the tank throughout the trip, ready to be donned for a dive anytime. On the upper right side of the transom is the tank filling station. It is supported in the engine room by an air bank system and a 15 cfm compressor. Winston has been careful to include backup systems for all mechanical and electrical devices to ensure your diving is never interrupted.

Little Cayman Diver often remains moored at the same spot for one day before moving on to the next. I found the diving so fabulous at each site it required a day to investigate each location. We explored the Gazebo with its tunnels, caves and lacy gorgonians; Nancy's Teacup; Two Ringer Wall, where the drop is so vertical it will leave you breathless; Three Fathom Wall; Jackson Point; Pirate's Point; Anchor Point—all amazing sites.

On each dive we were playfully greeted by schools of friendly groupers, including Nassaus, blacks, reds, tigers and coneys. Majestic schools of blues-triped grunts covered the reefs along the top of the wall while tame angelfish would come so close they filled the entire frame of my viewfinder.

For more information on the *Little Cayman Diver* contact Brac Aquatics, P.O. Box 280058, Tampa, Florida 33682-0058, or call toll free (800) 458-BRAC; in Florida call (813) 932-1993. Good luck! 🐠

POSADA DEL SOL MOVES

Posada del Sol, in Guanaja, Bay Islands, has moved its stateside reservations office to Riviera Beach, Florida. The new address is 171 West Blue Heron Boulevard, Riviera Beach, Florida 33414. The new telephone number is (305) 848-DIVE. The toll free numbers are still (800) 642-DIVE and (800) 226-DIVE (FL). 🐠

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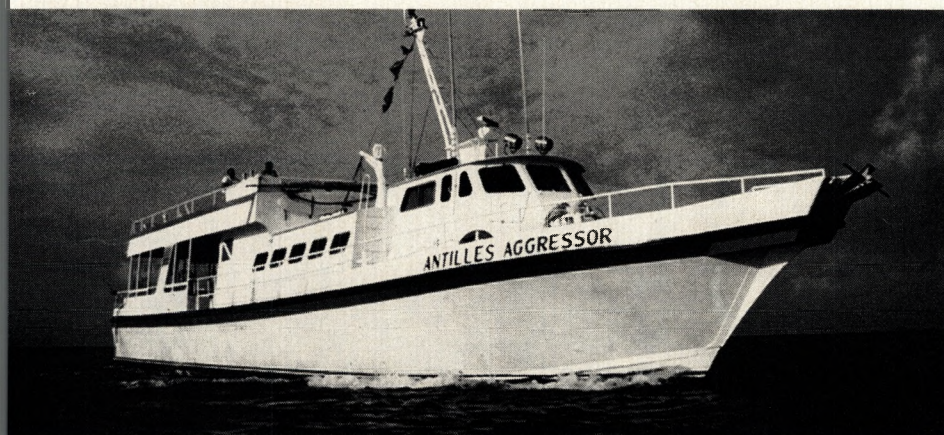
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If loyalty is any indication, I must qualify as an AKR fan. I've made at least one visit a year for nearly as long as the resort has been open (1971-72). In 1973, I taught one of the first Caribbean photo courses at Anthony's Key and wrote one of my first travel articles about the reefs of Roatan. Happily, not much has changed. There are a few new rooms and many improvements to the topside recreational program, but AKR has retained its distinctive identity: It's the way the Caribbean used to be. What physical changes have occurred are minimal and in keeping with the resort's tradition of blending with the environment. The ambience of the place will pluck heartstrings. An incredible 80 percent plus of AKR's guests are repeat customers.

For me, each visit is fresh and interesting. The Bay Islands are some of the most tropically perfect islands to be

found anywhere and there is an abundance of well developed corals, an unrivaled collection of sponges and a fine display of colorful marine fishes below the sea. Add the anticipation of unusual discoveries, such as manta and eagle rays and even a whale shark (sighted twice last year near West End) and you've got an exciting menu.

A large part of the total AKR experience is the friendliness and performance of its people. Most of the resort staff (78 full-time employees) comes from the nearby village of Sandy Bay and other small coastal townships along the west end of Roatan. Many employees have literally grown up at the resort, perhaps first as baggage handlers or dory boat operators and later working as waiters, dive-masters, boat captains, hostesses or accountants. Sherwin, the restaurant manager, has been with the resort as long as I can remember. Winsome, the night bartender, and Dennis, the dive operations manager, have been at AKR for more than ten years. Descendants of Scottish-English privateers, adventurers and explorers and African-Caribbean blacks, they all speak English and display a fine sense of humor and rural wisdom. With a spirit of self-sacrifice and an eye for the island's future, AKR's staff has adopted a no-tipping policy in favor of the establishment of a children's education fund.

Guests who wish to thank members of the staff for unusual warmth and service may leave a donation in the office when checking out. More than \$6,000 has been collected so far this year to the benefit of Roatan's children. They will learn better English and the necessary career skills at a special private school; a tribute to both guests and staff.

Presently, Anthony's Key plays host to a maximum of a little more than 80 divers usually on one or two week stays. This places the resort in a position of being very small and intimate, yet it is the largest and most active dive resort in this part of the Western Caribbean. There are no other major active resorts nearby and it is nearly impossible to find another dive boat in the area. Guest units, which are tropical cottages or bungalows, are perched along a verdant hillside on the main island and continue along the outside of the small, coconut studded Anthony's Key. Room appointment is pleasant and cozy, but not luxurious. There are no pretenses at Anthony's Key; rooms are plain, yet absolutely perfect for their surroundings. There is a comfortable bed, hot and cold sink and shower, and adequate storage space. Each room has a sundeck, and by way of wooden jalousies, a striking individual view of the resort grounds. A small dory ferries guests who are staying on the key back

ANTHONY'S KEY RESORT

EXOTIC JEWEL OF THE BAY ISLANDS

TEXT AND PHOTOGRAPHY BY RICK FREHSEE



Right: A Tan Sahsa DC-3 ready to take off on a flight to Roatan. Above right: Horseback riding is a popular topside activity at Anthony's Key Resort. AKR offers guests a peaceful, tropical experience described as "the way the Caribbean used to be," as well as great diving on a bold reef system featuring drop-offs and sponges.





Top: The tropical bungalows of Anthony's Key Resort border the tranquil bay. **Above:** Kathleen Reinman at Shallow Eel Gardens. **Above left:** Mathis Weatherall videotapes a diver and porcupinefish. **Left:** Interior of an AKR room.



BONAIRE

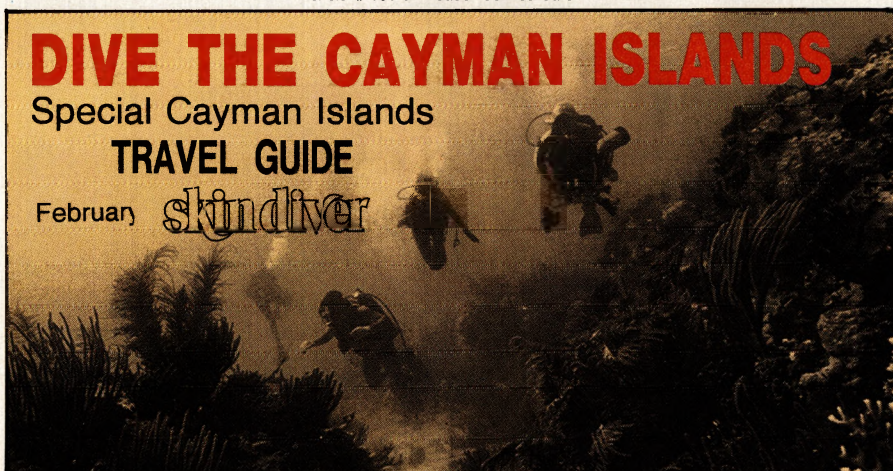
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ANTHONY'S KEY

and forth to the main island where the restaurant, bar, dock, disco and casino are. It's not a far walk to anywhere.

The mainhouse contains the lovely open air restaurant, a walk-up bar, several observation decks, the bird house (many lovely macaws) and the meeting and audio/visual room. Just off the mainhouse is the reception desk and offices. Down the hill (wooden steps and stairway) is a long bayside dock with a boat-house and several buildings including compressor rooms, dive gear storage, dive shop, gift shop and photo lab. The grounds on the main island are lush and forested; the key is crowded by coconut palms and partially concealed by rocky outcrops. Bungalows are arranged in singles, doubles, triples or quads along the edge of the lagoon and on the seaside. Tropical cottages on the main island are grouped the same, their sundecks suspended on stilts. The best overall photographic view is from the hilltops behind the resort. One view, from Driftwood Mountain, is simply breathtaking: Anthony's Key and little Bailey's Key to the left appear like emeralds surrounded by a turquoise sea.

Friends of AKR, who remember the early days, love to recount the personal fantasy of Paul Adams, the resort's founder. Originally from the U.S. Midwest, Adams plied the waters of the Western Caribbean aboard a sub-chaser during World War II. While passing the West End of Roatan, he spotted scenic Anthony's Key, Bailey's Key, Half Moon Bay and Tabiyna Beach from the deck of his ship. Completely charmed by the view, he vowed on the spot to return someday and build his home. More than 20 years later, Adams fulfilled his dream and returned to Roatan. There, for several years, he conspired with architects to create a resort that was in complete harmony with the environment.

Adams passed away several years ago and eventually the ownership of the resort was transferred to an island consortium. Julio Galindo is a major shareholder and the operations manager. He was Adams' choice for manager and his personal confidant for many years. Galindo has continued Adams' mandate and has worked hard to make the resort even more attractive to divers.

Logistically, diving is well organized and carefree. The storage room on the dock provides space for wetsuits and dive gear. Dive operations manager Dennis Anderson is a certified scuba instructor and a veteran of AKR's diving program. Under his direction is a wonderful group of local divemasters who are

(Continued on Page 110)

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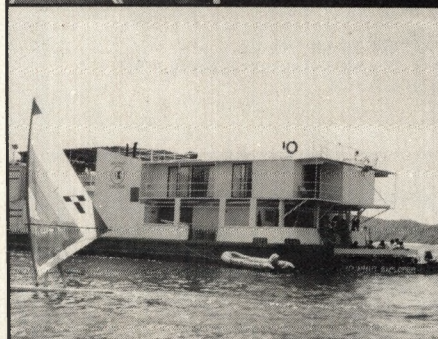
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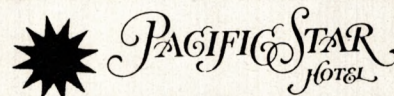


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ANTHONY'S KEY

(Continued from Page 106)

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Photo Roatan, also on the dock, facilitates equipment handling and film loading. It provides a charging station for photo cells. Photo pro Mathis Weatherall has a background in photography and divemaster work in the Florida Keys. He is a young man with a purpose; he is articulate in his instructional programs in still and video and oversees all E-6 film development. Pretty and capable Nancy Jeffries assists in the photo lab. Photo Roatan—with rental, repair, instruction and processing—is the most complete photo lab in the Western Caribbean.

The reefs accessible to Anthony's Key are huge and varied in structure. The drop-off is quite close to shore and, while not always completely vertical, is always dramatic. The shallow corals are very prolific; many species inhabit the same depth-zone, particularly in shallow water. While nearly every species of Caribbean stony coral is represented in Bay Island waters, it is perhaps the lettuce and pillar corals that are the most memorable and well developed. Roatan is known as the pillar coral capital of the Caribbean for good reason: Not only is it found in great abundance, but numerous stands tower more than ten feet tall. One particularly giant formation is found only three minutes west of AKR's dock and is one of the resort's most photographed underwater sites. Other mammoth pillar corals are easily found at Gibson Bight, West End Wall and Hole in the Wall.

Perhaps the major impression of Roatan reefs is of the unusually deep and sometimes huge clefts that dissect the mammoth reef structures leading to the wall. Usually associated with existing bays and ancient river troughs, some of these channels are wide and deep enough to consider as inside walls. When these fissures are narrow, they are known as cracks and divers necessarily

(Continued on Page 118)

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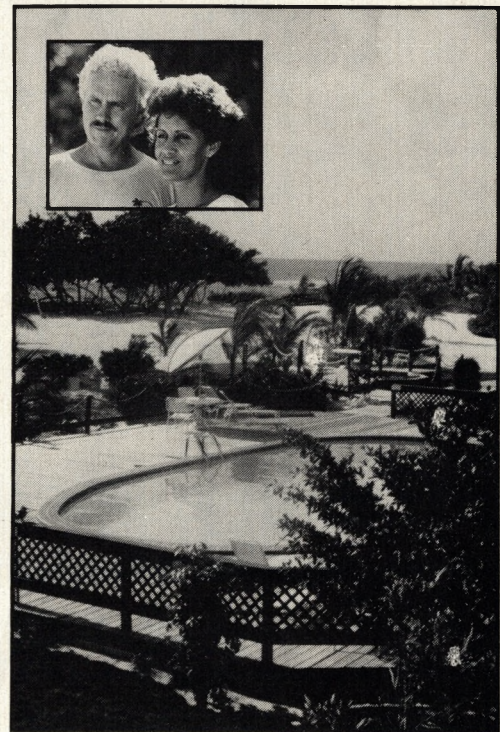
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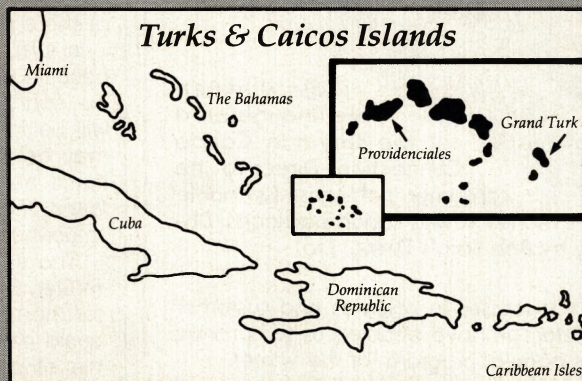
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SHIPWRECKS LOST

(Continued from Page 8)

tion. They will accuse law enforcement agencies of not doing their jobs. They will pressure influential politicians to step-up offshore patrols and arrests.

In turn, the enforcement agencies will become frustrated and will take it out on the sport diving community. Dive boats will be followed and spied upon. Some may be boarded and searched. If so much as one coin or a single nail is found, the dive boat may be seized and impounded. It all adds up to harassment.

The situation could deteriorate even further. Government agencies might push for the registration of all divers, so they could easily identify those people capable of conducting an illegal shipwreck salvage. Naturally, there would be a required registration fee to fund the administration costs for this government control program. The next step might be a special wreck diving license for sport divers who want to visit a wreck—any wreck.

Sound impossible? Not when the government gets into your sport and gets its hands on your wallet. Ten years ago I thought it would be impossible for the government to claim legal ownership of all abandoned shipwrecks. Today, I am not so sure. 

JAMAICA

(Continued from Page 94)

gril's water remains flat calm. Here, the underwater topography takes a different form. The wall that runs along the north coast is absent here, however consistency is an advantage and the reef structure is dramatic. At Sands Cut Reef, large undercuts with lots of encrusting sponges and hard corals are impressive.

The Arch is another fascinating dive. Here, a huge coral swim-through arch is covered with seafans and dripping with strawberry red finger sponges—a photographer's delight. We found many large nurse sharks under ledges on almost every dive.

Negril is a favorite for beach bars and roadside "higglers" offering famous Jamaican patties and cold drinks from portable ice chests. As you wander down the beach, you will also get a good idea of the many activities offered in Negril. Be it parasailing, snorkeling, waterskiing, reef touring or a hectic game of volleyball, there is something for everyone.

With so many reputable Jamaica Association of Dive Operators (JADO) members along the coast from Negril to Ocho Rios, it is tempting to sample many different locations. It had always been my impression that overfishing and the devastating Hurricane David had taken a toll on the reefs of Jamaica. Not so, for if it has,

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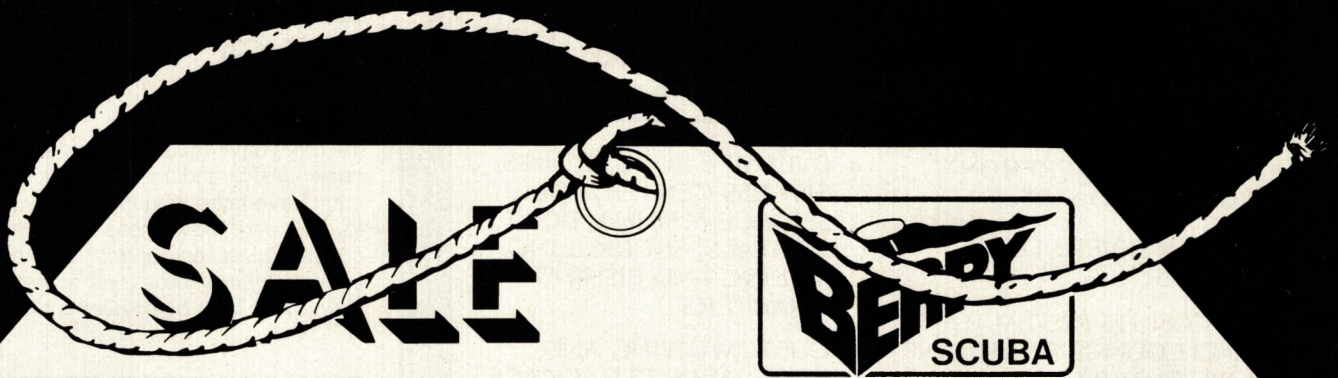
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JAMAICA

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covered. I know I will "make it Jamaica again" and no doubt many divers will—"soon come!"

For more information contact any of the dive operators listed here or write to the Jamaica Tourist Board, 866 Second Avenue, New York, NY 10017. You can call toll free (800) 223-5225; in New York call (212) 688-7650. Call the California office at (800) 421-8206 or (800) 252-2171. The Florida office number is (800) 327-9857. Good luck! 🐠

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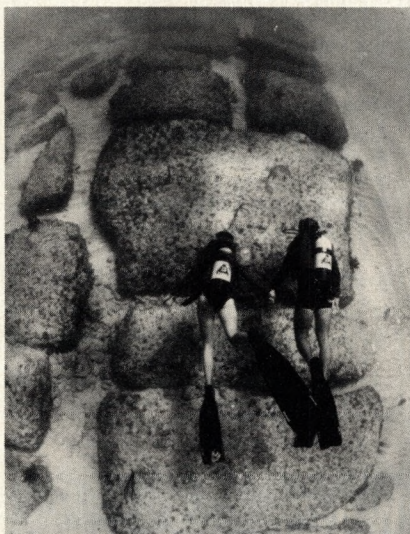
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ANTHONY'S KEY

(Continued from Page 110)

swim through single file. In many areas such as the trough at Shallow Eel Garden, the cathedral at West End, the crack at Mary's Place and the tunnel at Bear's Den, the fissures are overgrown and nearly covered by live coral from above.

No place in the Caribbean has a better selection of sponges than the Bay Islands. Roatan walls present a harvest of sponge types in a variety of shapes and colors. Most prominent are the basket, barrel, vase, cup and finger sponges. Unusual, yet abundant, are the wide varieties of azure vase sponges, yellow basket sponges and rope sponges in purples and yellows. Bunches of basket and barrel sponges sometimes appear, usually framed with bouquets of deepwater sea-fans, frothy yellow and white gorgonians, and delicate, lacy green bryozoans. Flittering royal grammas and black cap basslets navigate through the maze of shape and color, creating vivid seascapes and fairy tale scenery. Almost predictable are the constant meanderings of creole wrasse, blue tangs and blue chromis swimming single file or hovering in hordes over the coral landscape. Only in the Indo-Pacific are reefs more complex and mesmerizing.

Photographers equipped with macro tubes or close-up kits will be rewarded with a variety of subject matter including red, yellow and white gorgonians, lettuce nudibranchs, a variety of cleaning shrimp and two distinct species of tunicates. There is an unusual batfish found quite often on night dives as well as a huge stalked anemone. Also fairly common are the orange ball anemones found at night beneath ledges and overhangs. There is a good chance to find octopus on night dives and huge Caribbean reef crabs are common. Snake eels, scorpionfish and lizardfish are also easy to find. Fish life is generally good. Both reef and pelagic species are easily found.

The key to photographic success with critters is a helpful divemaster and AKR has plenty of them. Ed, Carlos, Dennis or Alvin have been responsible for most of my better photos. Serious shooters should consider a coaching session with Mathis Weatherall, who will introduce you to AKR's marine subjects firsthand.

Topside attractions at AKR are in keeping with the resort philosophy of low key tourism. The Bay Islands will not succeed with those seeking abundant shopping and glitzy attractions. There are no cruise ships, neon lights or swim-up bars in Roatan. The food at the resort restaurant is good and plentiful if not gourmet. Eats are homestyle, continental and island cuisine. The casino, a short distance from the resort, is a bit of a paradox. Although

it would not seem to fit into AKR's scheme of natural attractions, the building is unobtrusive, the dress is casual and it is a fun diversion as is the disco next door. Most visitors are entirely content to spend topside hours relaxing in a hammock, windsurfing, canoeing, sunbathing at Bailey's Key or hiking up the hill behind the resort.

Three really fun activities are the horseback riding, the Tabiyna Beach picnic and the weekly pig roast island cookout. These and all AKR social activities have had the benefit of a special touch provided by the resort manager, Mandy Wagner. Mandy, a tourism and hospitality professional, has lived on Roatan for nearly eight years and has improved almost every phase of AKR's operations. Horses and horse trails have been developed with the equestrian skills of Tracy Weatherall, Mathis' wife, who also functions as an AKR hostess. Other pleasant topside activities to be considered are the island scenic and cultural tour by van or taxi and a *cayuca* (motorized canoe) trip through the mangroves at Oak Ridge. An optional trip to Copan (on the mainland), one of the greatest ancient Maya centers, is a special attraction (one or two days).

A new and exciting addition to Anthony's Key is the 52 foot custom-built wooden sailing yacht *Lusanda*. For a small additional cost, you can arrange a semi-private party for up to six people, diving, sailing or a combination of both. The boat is beautifully appointed and skippered by the capable and effervescent owner, Harland Bush. The *Lusanda* will travel to remote sites along Roatan's uninhabited and undeveloped northeast shore as well as to the south side of Roatan. *Lusanda* will also be used for sunset cruises and transporting guests to the Tabiyna Beach picnic.

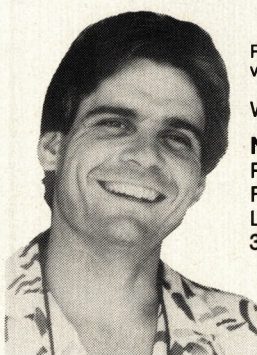
Of potential interest to underwater photographers is a series of Nikonos Technique Seminars presented by Photo Roatan and supported in part by a grant from Nikon, Inc. Several times a year the one week program takes interested photographers through a series of professional presentations made by a Nikon appointed photo pro. The seminars are offered at the regular weekly hotel rate with no additional course fee and include special tips in macro, close-up, standard and wide angle underwater photography. The AKR office in Miami has the details.

Divers, adventurers, nature lovers and true travelers will all love Roatan, but even paradise is not perfect. Compared to Cayman or Cozumel it's a little harder to get to. (A new airport with direct jet service is supposed to be available by mid year.) Also, tiny sand gnats can be bothersome during periods of rain and no wind. Bring a good insect repellent just in case. Smart travelers also carry cameras, bathroom kit, swimsuit and a change of clothes in case there is a day

(Continued on Page 122)

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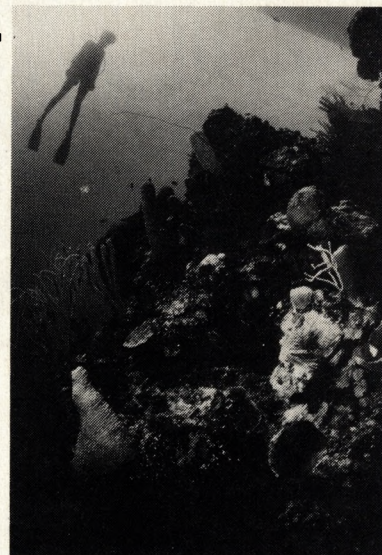
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MICRONESIA

(Continued from Page 99)

fairly large volcanic islands. The Air Mike plane lands right in the lagoon on the island of Moen.

Lying on the bottom of this lagoon are 50 known Japanese shipwrecks and hundreds of aircraft. They are the result of heavy Allied bombardment during World War II. Two decades of submersion have transformed these steel hulks into magnificent artificial reefs draped in colorful soft corals and delicate marine life. The lagoon is regarded as one of the Seven Underwater Wonders of the World.

Truk Lagoon has moderately good tourist facilities, including one major hotel and two or three other island hotels. There are also three dive operators that conduct daily trips to nearby shipwrecks. Truk Lagoon is also the home of a 170 foot long, air-conditioned, live-aboard dive boat.

GUAM

Guam is the largest island in Micronesia, but it is still only 30 miles in length. It is very different from the islands mentioned so far. Guam is a U.S. territory much like Puerto Rico or the U.S. Virgin Islands. It can be best described as a miniature version of Honolulu—complete with paved highways, U.S. military bases, deluxe hotels, shopping centers, restaurants and the University of Guam. More than 105,000 people live on this island.

As with Hawaii, Guam has several good sized dive operators that serve both local residents and visiting tourists. The diving around Guam is surprisingly good and offers a wide variety of underwater experiences including wall diving, cave diving, coral reef exploration and wreck exploration. It is an excellent choice for an all-around fun filled vacation that would please every member of a group.

SAIPAN

Saipan is a tropical paradise that is rapidly developing as the new resort center for the Northern Mariana Islands. It offers a diverse geography including lush jungles, mountain ridges, white sand beaches and high ocean cliffs.

Over the past few years, a number of first-class hotels have been built on this island and it has become a playground for sun lovers, waterskiers, sailors and divers. Dive facilities are excellent and underwater attractions include the wrecks of a sub chaser, zero fighter, a four engine bomber, landing craft and barges. Blue Grotto is a unique, land-locked pool connected to the ocean by two underwater tunnels.

The waters surrounding Saipan are remarkably clear, offering good opportunities for underwater photography. There are beautiful shallow coral gardens,

drop-offs, coral caves, a few wrecks and excellent fish activity.

TINIAN

South of Saipan, three miles across the channel, lies the island of Tinian. It holds the dubious historic distinction for being the loading and departure point for the *Enola Gay*. This was the B-29 that dropped the atomic bomb on Hiroshima at the end of WW II.

Tinian offers almost virgin diving and Saipan dive operators are now making day trips to this smaller neighbor on a fairly regular basis.

ROTA

Rota is a tiny island halfway between Tinian and Guam. It is in its earliest stages of tourism development. The main village of Songsong offers an excellent view of local island life. The people are friendly and unspoiled.

MICRONESIA DIVE TOUR OPERATORS

For more information about touring and diving Micronesia, contact one of the many dive specialty travel agents:

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(415) 442-0799

Continental Newmans Vacations
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(800) 252-4616 (CA)
(213) 552-0901

Poseidon Ventures Tours
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(714) 644-5344

Sea Safaris
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(213) 546-2464

See & Sea Travel
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(415) 434-3400

Trip and Tour
(800) 348-0842
(800) 843-8956 (CA)

Tropical Adventures Travel
(800) 247-3483
(206) 441-3483 (WA)

There is a hotel on this island as well as a dive operation. Underwater visibility is normally 100 feet or better. Dive sites include medium depth coral gardens, a giant underwater coral cavern and the wreck of a WW II Japanese freighter.

YAP

Five hundred thirty miles southwest of Guam is the island of Yap, part of the Western Caroline Islands. It is one of the



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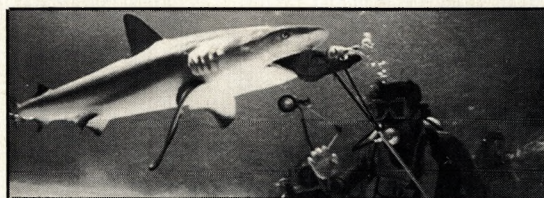
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MICRONESIA

most unusual and most fascinating spots in all of Micronesia. Yap has maintained an almost pristine island culture that dates back centuries. The men wear loin cloths and the women dress in grass skirts or lava lavas.

Perhaps the strangest aspect of the Yap culture is the rai, stone money the size of wagon wheels. Carved as disks with a hole in the center, this heavy ceremonial money was strung onto a pole and carried from one village to another by one-half dozen strong villagers.

There is a hotel on Yap and diving services are available through it. Underwater attractions include excellent coral gardens, interesting wall dives and lots of fish life. The outer reefs and channel are good locations for viewing and photographing sharks of several species.

PALAU

Palau is the furthestmost stop on the Air Mike route. It is at the far edge of the Western Caroline Islands and is actually closer to the Philippines than to Guam. This island community has recently become independent and is officially known as the Republic of Belau.

Palau's 70 mile long lagoon encompasses one major island and about 200 tiny islets known as the Rock Islands. One of the great thrills is to cruise the calm waters of the lagoon in a fast boat, zigzagging among the narrow water channels between these mushroom shaped coral formations.

Palau is a burgeoning resort center with several first class hotels. There are two dive operators plus a 65 foot live-aboard dive boat. Palau is regarded as having the finest wall diving in all of Micronesia. Drop-offs such as Ngemelis Wall begin at a depth of two feet and drop vertically to 900 feet. Marine life includes; manta rays, giant tunas, schools of jacks, sea snakes, sharks, *Tridacna* clams, giant seafans and magnificent soft coral formations. Palau also offers several unique experiences such as a freshwater jellyfish lake, several sunken World War II Japanese ships, a Zero fighter plane on a shallow reef; and a beautiful underwater/underground cave system.

ANTHONY'S KEY

(Continued from Page 119)

or two delay of baggage delivery (possible during the height of the season).

One entirely false fear is the threat of entering a war zone. Simply stated, Honduras is a very safe country—excepting the Nicaraguan border. The Bay Islands are far removed socially, culturally and physically. I personally make several trips

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a year into the capital and major cities of Honduras. In fact, AKR is a perfect place for honeymooners and families with children. Many U.S. and Central American families make annual trips to Anthony's Key. It is a perfect island fantasy for kids of all ages.

Tan Sahsa, the national airline of Honduras, flies 727s and 737s from the U.S. gateway cities of Miami, Houston and New Orleans with transfers to stalwart DC-3s made either in San Pedro Sula or La Ceiba for direct daily flights to Roatan. Saturday or Sunday arrivals/departures are the most popular. Challenge Air, Eastern Airlines and LACSA also have flights from the States into Honduras.

For more information write or call: Anthony's Key Resort, 1385 Coral Way, Suite 401, Coral Gables, FL 33145; (800) 227-DIVE, (305) 858-DIVE. ✉

DIVING MEDICINE

(Continued from Page 24)

the sarcoid should not inhibit diving. And, there should be no problems with one atmosphere systems.

WEIGHTLIFTING AND DIVING

There is no known problem with weight training and diving. If there is good physical condition and no significant medical illnesses or physical handicaps, there should be no problem with diving. Training usually gets a person into good physical condition, and he/she should strive to improve aerobic conditioning along with his/her strength. Good physical conditioning, including some weight training, makes better divers. There is no known concern with weight training and bends or other types of diving disorders.

DIVING AFTER A BRAIN TUMOR

If someone has undergone successful treatment for a brain tumor, the problem with diving would be the possibility of recurrence of seizures. If the patient is dependent on dilantin for protection from seizures, then it would be risky to dive. The hyperbaric levels of oxygen, the cold and other stresses in diving could trigger a seizure. If the EEG showed no abnormal electrical focus, the patient might try to eliminate dilantin therapy. Then, if free of seizures for a year without dilantin, it might be possible to return to diving. There is also a question of whether such a person is at risk for developing decompression sickness in the area of the previous surgery and radiation. There is some evidence that scar tissue is more prone to bubble formation.

It is a wise choice to continue snorkeling even when there is no problem with any of these considerations, including during a free dive to a shallow depth. Returning to scuba diving is somewhat uncertain and I would suggest there be no diving unless the criteria outlined above can be met. ✉

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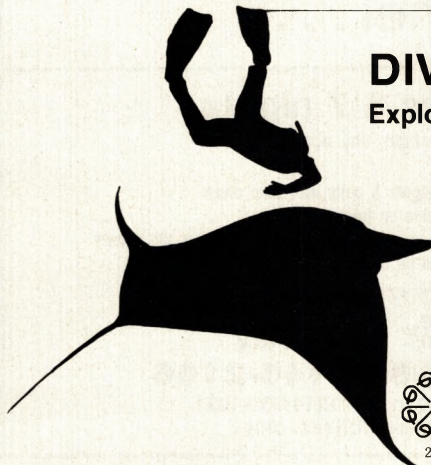
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BY E.R. CROSS



photos / Joe D. Williamson / courtesy Bob Click

The *Diamond Knot* near Crescent Bay on August 13, 1947. Note the water level.

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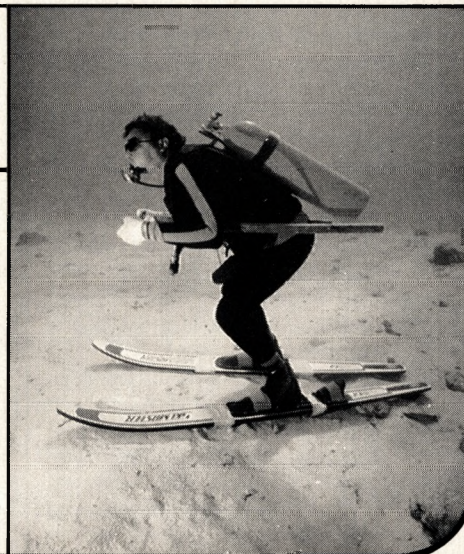
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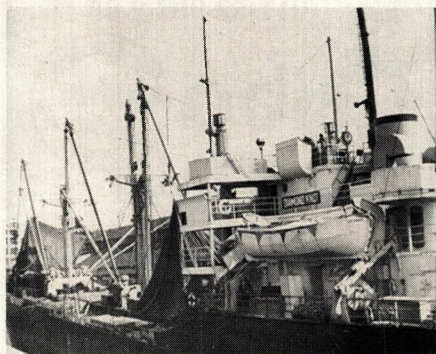
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busiest sea lanes, is a 15 mile wide arm of the Pacific Ocean jutting inland from the sea to the Seattle/Tacoma area. It separates northwest Washington from Canada's Vancouver Island. The strait is bordered on either side by deepwater sounds, bays, basins, narrow channels, harbors, dangerous passes and more straits. A chart of the area resembles a small ocean into which dozens of islands have been randomly dumped.

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The M/V *Diamond Knot* berthed at Seattle, Washington. She was 330 feet long and displaced more than 5,500 tons gross.

and cargoes—has been paid for the use of these tempestuous waters.

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Some vessels, like some people, become more celebrated after death than before. Such is the case of the M/V *Diamond Knot*, known simply as the *Knot* to those who dive her regularly.

The *Knot* was not a spectacular vessel. Her length was only 330 feet overall and she displaced just more than 5,500 tons gross with space for a mere 2,123 tons of cargo. Forward were peak tanks, a bo's'n's locker, chain locker and the anchor windlass. Next aft were the forward holds, then the midship and aft holds. The engine room was aft under crew and officers' quarters and the galley and mess halls. Her main engine was a single acting, solid injection diesel normally rated at 1,750 hp. In her fuel and lube oil tanks she carried about 35,000 gallons. Above decks, over the hatches, was a forest of masts, kingposts and booms arranged for efficient handling of cargo. She was an unlovely lady designed and built during WW II as a Victory vessel. After many successful battles with the relentless

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DIAMOND KNOT

ocean elements, she lost an encounter of the worst kind: a collision with another ship.

THE CARGO

The M/V *Diamond Knot* was the property of the United States Maritime Commission, but was bareboat chartered to the Alaska Steamship Company at the time of the accident. In Alaska's Bristol Bay cannery and fishing ports her holds had been packed with 154,316 cases of canned fish—7,407,168 cans of red, king, chum and coho salmon—a treasure valued at \$3.5 million in 1947. In addition, some lumber, cannery equipment and labels for the canned fish were stowed in the *Knot's* holds. She carried 50,000 gallons of herring oil in one of her deep tanks. Secured on deck was a small fishing boat, an automobile and 155 barrels of salt fish. All were booked for the busy port of Seattle, Washington.

THE VOYAGE

As soon as the last can of salmon was stowed and the hatches battened down, the *Knot* stood out of port and set a course across Bristol Bay, sailing almost due west just north of, and parallel to, the Alaska Peninsula. After a run of about 26 hours, the course was changed to south and, at Unimak Pass, the vessel made her way through the passage into the Pacific Ocean. Then, when just south of latitude 55° north, the pitching and rolling freighter headed for boisterous Cape Flattery and the entrance to the Strait of Juan de Fuca.

It was a dark night on August 12, 1947 when the *Knot* started threading her way into the narrow strait. Heavy seas were running. The entrance buoy and both shorelines were shrouded in fog. In the early morning hours of August 13, still dark and still foggy, she had safely reached an area about three miles south of Race Rock, barely north of the center of the strait.

The freighter *Fenn Victory*, almost twice the size and tonnage of the *Knot*, had departed Seattle enroute to the Pacific. She was loaded very light with only 200 tons in her holds. Her bow rode high and sliced through the water as she headed seaward.

In the pre-dawn blackness both vessels were still enveloped in fog. The off-watch crews of both freighters were still asleep. The crews on watch were preparing for an early breakfast. On the *Knot* there was a lot of work to do to get the vessel ready to enter port for offloading. The *Fenn Victory* was readying for her voyage into the blustery Pacific.

With no warning, the bow of the *Fenn Victory* smashed into the starboard side of the *Knot* between the number two and three cargo holds. The shattering impact

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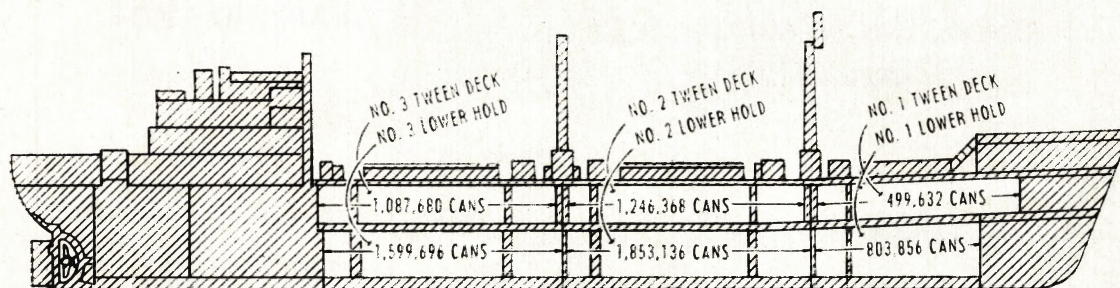
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This diagram shows the location of the canned salmon in the *Diamond Knot*. Additional cans were stored in number four reefer hatch. The total was more than 7,407,168 cans.

of 15,000 tons of ships coming together shook the vessels violently.

DEATH OF THE KNOT

The screechings and scrapings of thick metal being torn apart as the *Fenn Victory* ripped her way through 14 feet of the *Knot* were the screams of a dying vessel. The bow of the *Fenn Victory*, towering above the water, had become fouled in the heavy cross tree on the mainmast high above the deck of the *Knot*. The two vessels were locked in a death grip as the tidal current carried them westward.

Distress calls had been sent out by both vessels and were received by the United States Coast Guard and relayed to salvage companies at both Victoria, British Columbia and Port Angeles, Washing-

ton. The rescue tugs *Matilda Foss* and *Foss 21* out of Port Angeles, only nine miles to the south, were first to find the distressed vessels. The deep gash in the side of the *Knot* was obviously a fatal wound. Her decks were already down and awash in the wave swept strait.

It was now daylight. The rescue tug *Salvage Chieftan* from Victoria had arrived. Workers from that vessel boarded the *Knot* with burning equipment and, at great risk to personnel, were finally able cut the two vessels apart. The *Fenn Victory* made it to Seattle under her own power. Tow lines were run to the *Knot* from the tugs *Matilda Foss* and the *Foss 21*. They started to tow the stricken ship, stern first, toward shallow water and shelter in Crescent Bay on Washington's

Olympic Peninsula. It was hoped the vessel could be grounded there and the treasure in canned salmon offloaded. But, success eluded the salvors.

There is slack water in the Strait of Juan de Fuca only between tidal changes. During flood and ebb stages treacherous currents of several knots wash through those waters. The tidal currents ebbing out of Crescent Bay seem to be some of the most vicious. As they rip past Tongue Point Reef to the east and Crescent Rock to the west, they meet the flood current rushing into the strait from the Pacific Ocean. When the *Knot* was towed into this vortex of currents, the vessel twisted violently around and rolled onto her starboard side. She sank to her death in 135 feet of water.



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DIAMOND KNOT

THE SALVAGE PLAN

There are many facets to the successful salvage of a major marine loss. A salvage team, to act quickly and successfully in saving a loss of the magnitude of the *Knot* and her cargo, would involve: the insurers and reinsurers; an experienced marine engineer to become the salvage master and develop a plan; a surveying team to evaluate the cargo for the insurers; a prime contractor to provide equipment; and a subcontractor to provide divers and diving service to carry out the intricacies of the salvage plan.

THE INSURERS

In most successful salvage operations, the prompt action of insurance companies and their reinsurers becomes the catalyst that results in success. To save \$3.5 million of canned salmon from the corrosive action of saltwater, prompt action by the insurers was critical.

The action of the Fireman's Fund Insurance Company, the principal underwriter, was of such importance in the successful salvage and the ultimate physical condition of the *Knot* as an artificial reef, that the action should be described briefly.

The *Knot* was ripped by collision in the early hours of Wednesday, August 13, 1947. She sank a few hours later at 0855. The insurers were notified by 1000 that date. The Northwest Marine Branch of Fireman's Fund, in Seattle, immediately began processes to indemnify the staggering losses of the insureds. In quick succession, checks were issued for losses: \$982,000 for one cargo owner; another for more than \$2 million to an insured food packing company; and, only four days later, a payment of almost \$370,000 was made to another principal insured. A claim for \$16,000 was paid for the fishing vessel *Ruth B* that was deck-shipped on the *Knot*. And, a final payment of \$12,000 was made to the crew for personal effects lost when the *Knot* sank. The Fireman's Fund Insurance Company, and the reinsurers, now owned everything that sank with the *Knot*. As owners, they could quickly execute a salvage plan. The vessel itself was owned and insured by the United States Maritime Commission.

THE MARINE ENGINEERS

While the payments for the insured cargo were still in progress, Fireman's Fund Insurance Company was investigating the possibility of recovering and restoring the canned salmon in the smashed and flooded holds of the *Knot*. Marine engineer Walter L. Martignoni, of Pillsbury and Martignoni, was chosen to direct the salvage operation. In 1947, this great

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man of ship salvage had already been responsible for such jobs as the salvage of the large oil tanker *Tamiahua* at Pescadora Beach off the California coast. To this could be added the salvage of the *Mastodon*, the *Point Ancha*, the *Tillamook* and many other vessels.

THE SURVEY TEAM

The marine cargo survey team chosen by the insurers to evaluate what part of the cargo was worth salvaging was Alexander Gow, Inc. of San Francisco. James Gow, son of founder Alexander Gow, was appointed chief cargo surveyor. Charles Banghart, of Gaynor-De Witt, was chosen to represent the insurance company in the survey. Both companies had a long history of providing valuable information and in evaluating conditions of insurance losses.

THE SALVAGE CONTRACTOR

A tremendous amount of equipment would be required to salvage the *Knot* and/or her cargo. Barges; tugs; heavy anchors and chains to hold these in place against strong currents and heavy weather; air compressors; pumps; suction and discharge hoses; and, of even greater importance, a crew of watermen knowledgeable in marine salvage. Foss Launch and Tug Company, owner of the *Matilda Foss* and the *Foss 21* (the first vessels to reach the *Knot*) was chosen as the prime contractor. This company had a long history of successful marine work dating back to 1889.

THE DIVERS

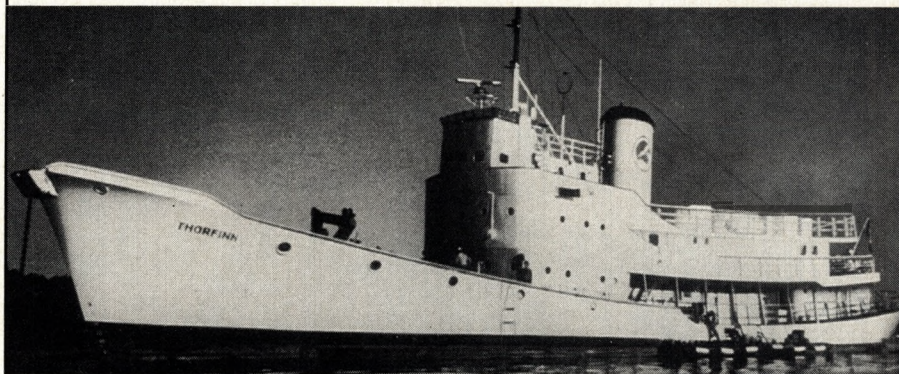
Two of the best commercial divers on the West Coast were chosen to lead the dive teams. Art McCray was to be the subcontractor in charge of all undersea work. This man—a diver most of his life—had a reputation as a fearless, relentless and capable underwater worker. Fred Devine, master diver from the Columbia River area, was chosen to assist McCray in the underwater work.

In a pamphlet issued 40 years ago by the insurance company, titled *The Story of the Diamond Knot*, the author stated, "Defeat or victory in the battle against the turbulent, possessive sea covering the *Diamond Knot* and her rich cargo was to be determined by these carefully selected captains of the salvage team." This statement proved true many times in the weeks ahead.

The conclusion of the Diamond Knot story will be published in a future issue of SKIN DIVER. In that segment, the author discusses the salvage of the ship's cargo and current diving conditions on the wreck.

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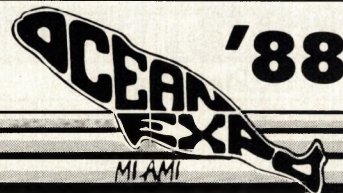
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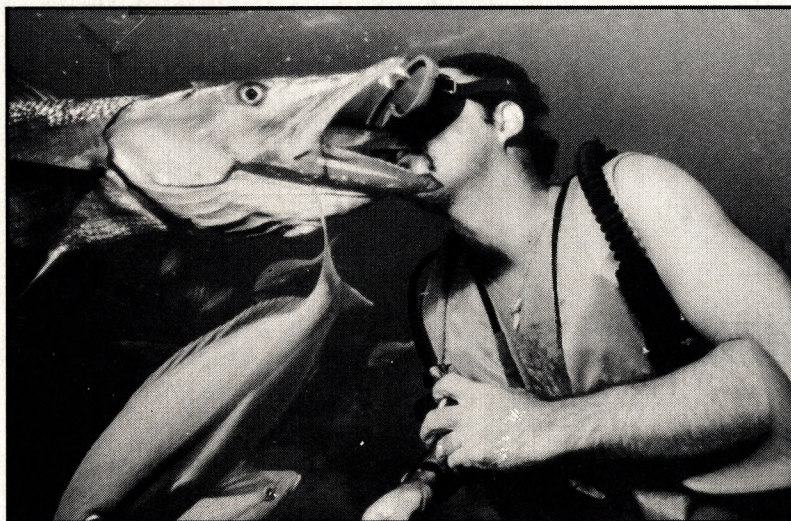


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CAYMAN MOORINGS

Scientists have long known that reef corals are not only brittle and fragile, but that they grow very slowly. The anchors of boats, even those of small runabouts, seriously abrade or even break coral heads. When dive boats visit the same popular sites on a regular basis, serious damage to the reef community is inevitable—despite efforts to be careful.

The Cayman Islands government has taken an enlightened lead in literally eliminating this threat. Using a system developed by the Key Largo National Marine sanctuary, marine biologist Steve Smith and captain Wayne Hasson of the Aggressor Fleet Ltd., have placed 40 moorings off Grand Cayman, 36 off Little Cayman and 27 off Cayman Brac. For boats up to 60 feet in length a single point mooring can be used, while triple point moorings are required for vessels such as the *Aggressors*, which range up to 120 feet.

Installing a mooring involves four steps: 1) First, a hard rock area is isolated to offer a strong substrate. 2) With a



photo/Carl Roessler

compressor on the *Aggressor* anchored directly above, a hydraulic drill bores a four inch diameter, 20 inch deep core out of the amazingly dense rock. 3) A stainless steel eyebolt is placed in the hole and secured with U/W cement. 4) After five days of hardening, a shackle and buoy line can be attached to the eyebolt.

One hole and cemented eyebolt constitute a single point mooring, while a set of three is required to safely accommodate a larger vessel. Life expectancy on the eyebolts is 5-10 years, so this is an ongoing program to protect the Caymans' finest dive sites in perpetuity. >

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The programs at Bonne Terre Mine are busiest during the winter months when Midwestern bodies of water are not acceptable for student training activities. Bonne Terre Mine is 58 miles south of St. Louis, Missouri. To become a deep earth diver contact West End Diving Center, 11215 Natural Bridge Road, St. Louis, Missouri 63044; (314) 731-5003. 

CAYMAN DIVING LODGE

The Cayman Diving Lodge is reopening under new management on February 1. This quaint diving lodge has undergone extensive renovations and now offers fine diving in the East End district. The diving here is on virgin coral reefs where the fish are quite inquisitive.

Ray and Judy Plain, the new owners/managers, have extensive diving experience and are both instructors and dive-masters. The lodge is offering accommodations in 17 renovated rooms with Caymanian style cooking to accompany an unlimited diving package at reasonable and affordable rates. For information and reservations, please call, toll free, (800) 852-DIVE. 

LITTLE CAYMAN DIVER SEMINAR

A special marine life seminar, stressing photo techniques and led by Nancy Sefton, is being offered aboard the *Little Cayman Diver*. The 65 foot live-aboard vessel will anchor at Bloody Bay, Little Cayman, for a week beginning May 1. There will be unlimited diving both night and day. The seminar will provide a basic understanding of the reef ecosystem and how its most common residents survive. Included will be photo tips guiding the diver's approach to his/her favorite subjects.

Nancy Sefton, a NOGI Award winner, is a widely published photographer whose reef photos have been purchased by Time-Life Books, the National Geographic Society and Walt Disney's Epcot. She is co-author of the popular field guide *Caribbean Reef Invertebrates* and is a four year resident of Little Cayman.

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DIVI RESORTS

Divi Resorts and Peter Hughes Diving have opened Peter Hughes Dive South Ocean in Nassau, Bahamas. This all new and completely modern facility will meet the same high standards that all Peter Hughes dive operations are known for throughout the Caribbean. It will be managed by certified NAUI and PADI instructor, Harry Ward, previously dive manager of Peter Hughes Dive Bonaire.

Dive South Ocean will feature the latest in equipment, custom designed boats and total scuba instruction. A complete photo facility, including underwater video equipment, will be available within the first year of operation.

Dive South Ocean will offer individual dives and packages, as well as complete vacation packages with accommodations at the new Divi Bahamas Beach Resort and Country Club. The dive operation is on South Ocean Beach at the West End of Nassau.

Since Harry Ward is now general manager of Dive South Ocean, taking over his former job as general manager of Dive Bonaire is Alan Jardine. Other personnel changes include Marlon Panka's appointment as assistant dive operations manager of Dive Bonaire I and Dana Veid's appointment as assistant operations manager of Dive Bonaire II. Other appointments include Lee Blancher as chief engineer, Elaine Bale as sales manager and Tom Jahn as director of instruction.

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Jefferson C. Davis, M.D., director of hyperbaric medicine at the Methodist Hospital and Nix Medical Center in San Antonio, Texas, is the course director and will present Medical Recommendations on Fitness for Diving and discuss practical diving safety.

David Elliott, M.D., medical director of Shell U.K., of London, England will pres-

ent the internationally recognized state of the art in management of diving accidents. T.K. Hunt, M.D., professor of surgery at the University of California at San Francisco, will correlate classic undersea physiology of tissue gas exchange with his studies on wound healing.

Special guest speakers will be Paul Tzimoulis and Geri Murphy, who will host a seminar on underwater photography.

For information or a brochure contact Medical Seminars, Inc., One Elm Place, Suite 204, 11107 Wurzbach Road, San Antonio, Texas 78230; telephone (512) 690-1005. 

SUBS DOCUMENT CAYMAN DEEP REEFS

A 12 man photographic and technical team was recently in the Cayman Islands filming the island's deep reef slope between 100 and 1,000 feet. The National Geographic photographic staff was headed by Emory Kristof, who is responsible for NGS's underwater photography beyond the range of scuba. Kristof used Research Submersibles Ltd's PC 1802 and PC 1203 submarines to photograph the west wall of Grand Cayman.

The submarines were equipped with internal and external 35mm still cameras and Benthos strobes, plus an array of video cameras. Video filmed during this expedition will be used in the production of a new series of short 3-D films produced by National Geographic for museums and special exhibitions. The stereo cameras for this portion of the project were developed by Deep Sea Power and Light of San Diego. Additionally, the submarines were equipped with a macro/hybrid 35mm still camera with a macro lens combined with a video camera, developed by National Geographic.

David Doubilet was responsible for the underwater photography done on scuba and the photography done with National Geographic's modified Sea Rover ROV—also equipped with a macro/hybrid camera in addition to its standard video.

The photography from this expedition will be used in the October 1988 special edition of National Geographic magazine, which will be dedicated entirely to the world's oceans. 

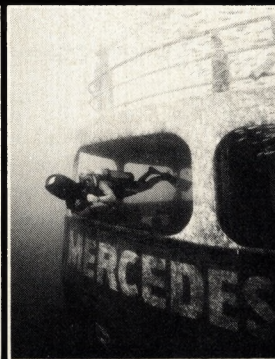
NON-SMOKERS TO FIJI

See & Sea Travel, Inc. is offering a non-smoker's cruise to Fiji's greatest reefs. This special cruise will run June 7-18, led by Darian Barker. Non-smokers will enjoy the comfort and service of the 120 foot floating dive resort *Pacific Nomad*; cruising off the beaten track to some of Fiji's most remote and untouched reefs.

For further information on this non-smoker's diving adventure, contact See & Sea Travel, Inc., 50 Francisco Street, Suite 205, San Francisco, CA 94133; (415) 434-3400—or Darian Barker (713) 427-0949. 

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Photos Mark M. Lawrence

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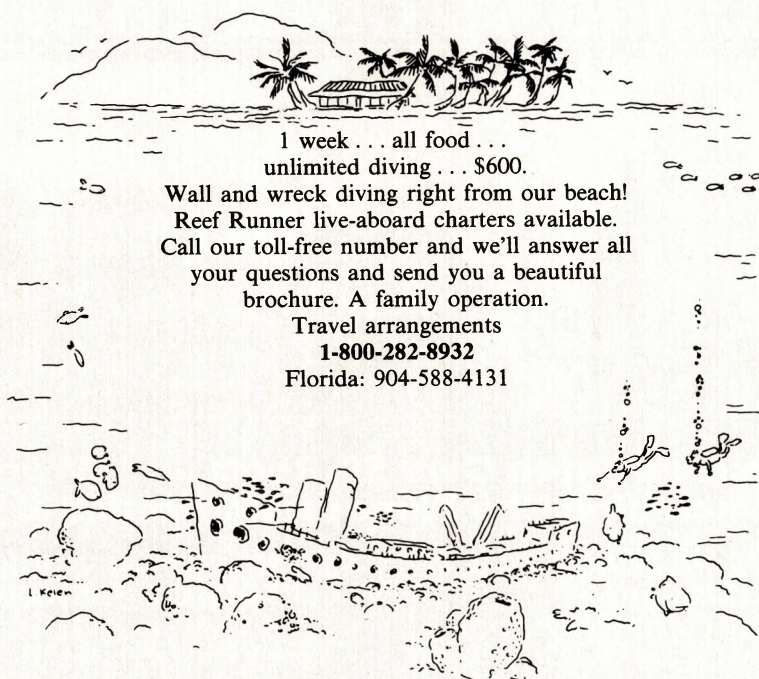
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SEA FEVER UPDATES

Renee Hobart recently joined the staff of Sea Fever Diving Cruises, Inc. Hobart,



a NAUI instructor, formerly with a Miami dive operation, joins the crew of the 90 foot live-aboard vessel *Sea Fever* as divemaster/instructor. Hobart will conduct resort courses as well as full certification and specialty courses.

Sea Fever, which runs five and seven day cruises to the Bahamas and Cay Sal Bank, specializes in underwater video production and photo tours.



Kyle True recently joined the staff of Sea Fever as director of sales. True, a cruise consultant, was formerly with a Miami travel agency.

For more information contact Sea Fever Diving Cruises, Inc., P.O. Box 39-8276, Miami Beach, FL 33139. Telephone (305) 531-3483 or (800) 330-1117 (FL) or (800) 44-FEVER (outside Florida).

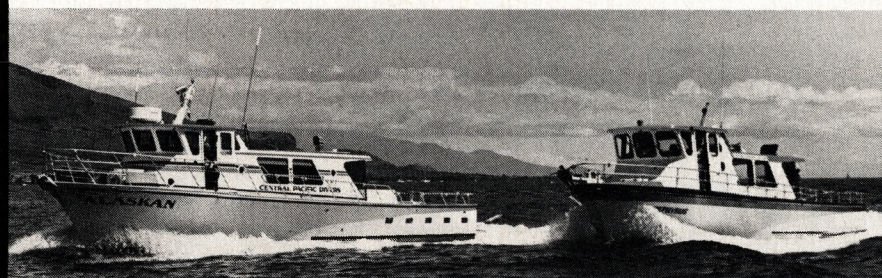
JIM ATRIA ARTIFICIAL REEF

Fish and scuba divers are flocking to the newest of Broward County's artificial reefs. The 240 foot *Poinciana* was recently sunk to form Jim Atria Artificial Reef. This ship is the largest deployed to date in waters accessible to scuba divers offshore Ft. Lauderdale.

With funds from a \$20,000 grant from

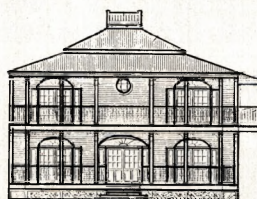
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For information:

Packages or accommodations 1-800-433-6815 toll free

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Or contact Central Pacific Divers 808-661-8717
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the Florida Boating Improvement Program (boat registration monies) and a \$10,000 donation from Jim Atria, the Broward County Artificial Reef Program purchased the vessel and the preparations for sinking began. Atria is a Broward County developer who is also a recreational diver and fisherman.

The clean-up was, as in past projects, the combined effort of the South Florida Divers Scuba Club and many members of the Broward marine community. Hundreds of hours were spent cleaning the ship of debris, hazardous chemicals and oil. Hatches and doors were removed and large holes were cut in the side of the ship to give greater access to the interior. The Port Everglades Authority gave free dockage. Hvide Shipping donated powerful tugs to tow the ship from Miami to Port Everglades and again to the sinking site. Cliff Berry, Inc. donated the equipment to rid the ship of oil. Grady Marine Construction donated a crane to remove heavy debris. Southern Sanitation hauled the trash away at no cost. Even the beverages for the volunteers were donated—by William Thies and Sons.

As hurricane Emily was roaring up from the Caribbean, a decision was made to move the sinking of the new reef up one week. At dawn on September 23, the Broward Sheriff's Office Bomb and Arson Unit was already busy setting, checking and double checking the 80 pounds of dynamite that would be used to send the ship to the bottom.

Pointing north and lying on her port side in 110 feet of water offshore Ft. Lauderdale, the Jim Atria Reef is beginning to be covered with algae and barnacles. This ship will soon create a whole new ecosystem benefiting the environment and economy of southeast Florida for many decades.

Jim Atria Reef's Loran C coordinates are 14266.5/62103.5. Range drawings of this and other artificial reefs are available from Broward County Erosion Prevention District, 955 S. Federal Highway, Ft. Lauderdale, FL 33316. 

POWELL LECTURE CIRCUIT

During a special 1988 lecture circuit, Dr. Michael Powell of the Institute of Applied Physiology and Medicine will be discussing his research that led to the new recreational dive tables now being distributed by PADI. Dr. Powell will be speaking at a number of consumer shows this year. His winter/spring circuit includes: Ocean Expo, February 19-21; Seas, March 5-6—Raleigh, NC; Sea Rovers, March 12-13—Boston, MA; Beneath the Sea, March 26-27—New York, NY; and Our World-Underwater, April 22-24—Chicago, IL. For more information on Dr. Powell's lecture circuit contact PADI, 1243 East Warner Avenue, Santa Ana, CA 92705. 



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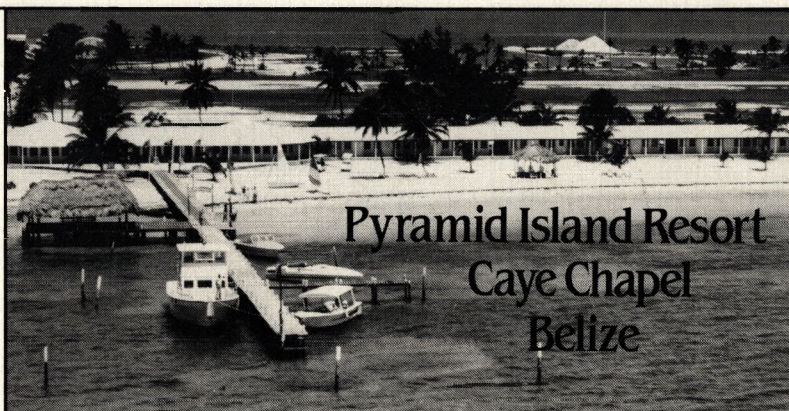
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JOURNEYS END CARIBBEAN CLUB

Journeys End Caribbean Club is the newest full service beachfront resort in Belize—4.5 miles north of the town of San Pedro on Ambergris Caye. Formerly an exclusive private estate, it is now a popular resort for sport minded travelers.

Reached by a short, 10 minute private boat journey from San Pedro, the resort is set on its own palm studded beach in complete seclusion and security. The full service resort, although competitive in price to the other hotels on the island, offers all watersports (including diving, snorkeling and fishing) on its own boats, airboat rides, Windsurfers, Hobie Cats, paddleboats, water skiing, Jet Skis, canoes, volleyball, horseshoes and many more activities. There are 10 beachfront, mahogany paneled cabañas with ceiling fans, optional air-conditioning, double beds, individual porches and a view of the Caribbean Sea and the barrier reef. Ten new villas, with stucco construction, tile floors, mahogany ceilings, individual porches, ceiling fans and optional air-conditioning, have just opened. There is a three bedroom, three bath guesthouse on the beach constructed of local mahogany with TV, stereo, kitchen, living room and wraparound porch. The main clubhouse features telephones, fax, computers, a TV lounge and dining room serving a varied menu. The open air Driftwood Bar is the "in" place on the island for fine drinks, with frozen margaritas and piña coladas as specialties. Set right on the beachfront, it offers a view of the beach, coconut palms and the waves breaking on the barrier reef.

The resort offers trips to the mainland, Maya ruins, Belize zoo, moonlight cruises, glassbottom boat trips and visits to town as well as arrangements for diving the Blue Hole, Lighthouse Reef, reef snorkeling and exciting fishing trips. A full service dive shop is on the premises, along with divemasters and instructors offering both resort courses and full NAUI and PADI certification courses.

For information contact Journeys End Caribbean Club, P.O. Box 13, Ambergris Caye, Belize, C.A.; (501) 026-2173. 🐠

ISLA MIA VIDEO SEMINARS

A new series of video technique seminars will be offered aboard *Isla Mia* in Belize. These will be similar in format to the Nikonos Technique seminars offered last year. Seminar hosts will cover still versus motion picture techniques, using story boards, artificial and natural lighting, editing/post-production and various options in equipment. Since shooting your tape is the easy part, these seminars will emphasize how to produce a satisfactory finished product after you return home.

Marty Snyderman will host two seminars (February 13-20 and June 25-July 2) and Mark Ramsperger of Stephen Frink Photographic will host two more (April 2-9 and November 12-19).

Sony and Nikon video cameras will be available for the courses so students may actually use the techniques being taught.

For further information contact See & Sea Travel, Inc., 50 Francisco Street, San Francisco, CA 94133; (415) 434-3400 or Isla Mia Ltd., Rt. 3, Box 214-A, Corpus Christi, TX 78415; telephone (512) 854-0247.

ROBERTSON/ ADVENTURE EXPRESS

Adventure Express of San Francisco has added Mary Jo Robertson to its staff. Robertson joins Theresa Detchemendy and Deborah Baratta, together representing more than 31 years of experience in the travel industry. Robertson has dived throughout the world, including extensive trips to the Caribbean, Micronesia, the Red Sea, Galapagos, Mexico and Hawaiian Islands.

TEXAS PHOTO COMPETITION

The entry deadline for the Texas Gulf Coast Council of Diving Clubs' annual photo competition is January 16 (judging will occur on January 19).

The competition is open to Texas residents only and each contestant may enter as many as four slides in each of three categories: underwater novice, underwater open and surface. There is a separate \$5 entry fee per category and each slide may only be entered once.

For more information call Kirk Leissner (409) 265-8098. Send entries and checks to Texas Gulf Coast Council, c/o Kirk Leissner, P.O. Box 1142, Clute, Texas 77531.

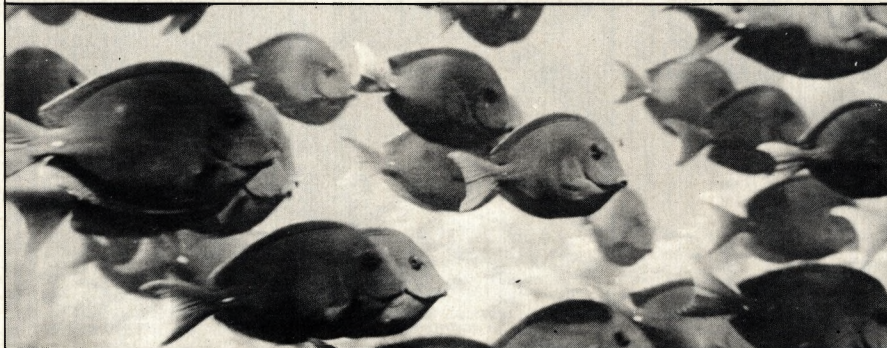
PALMETTO SCUBA GOOD SAMARITAN

Rob Javins, training director for Palmetto Scuba at Port Paradise Resort in Crystal River, Florida, is the first recipient of the Good Samaritan Award presented by O'Hanlon and Associates of Palm Harbor, Florida. Javins, a PADI master scuba diver trainer and a PADI medic first aid instructor, along with a fellow co-worker, rescued and administered CPR to a tourist who suffered an epileptic seizure while diving in King's Bay at Crystal River.

The award is presented by O'Hanlon and Associates to medic trained individuals in recognition of their willingness to respond above and beyond the call of duty and who provide appropriate emergency care to a fellow human being.

In addition, Javins has become a fully licensed USCG captain. For more information contact Palmetto Scuba at P.O. Box 2532, Crystal River, Florida 32629 or call (904) 795-7437.

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Your adventure will begin at WEST END DIVING-BONNE TERRE "OLD MINE DIVE SHOPPE" where you can enjoy a cup of coffee, and pick up that last minute necessity. NEXT you will meet your Diveguide whom you will follow through the mine entrance and down the well lighted historic Mule Trail to the staging area (adjacent to the LAKE), where you will change into your diving equipment in the locker rooms for men and women. YOU WILL THEN descend the stairs to the diving platform in the BRIGHTLY LIT "BILLION GALLON LAKE". After a dive briefing by your Diveguide and routine equipment check, you will gear up for an unforgettable dive.

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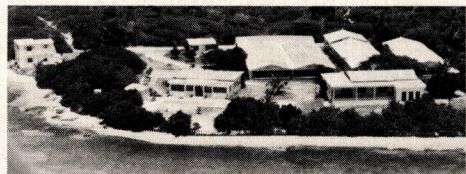
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How to buy your Caribbean island home



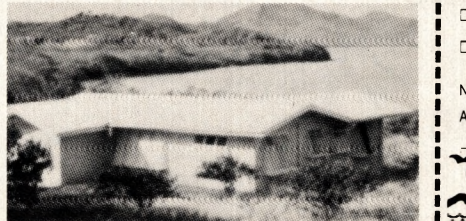
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SCUBA DIVING

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Coverage And Premiums
Based On Amount Of Risk

BY TOM THOMPkins

As a life insurance underwriter, it is my job to review applications for life insurance from people with a wide variety of backgrounds, medical histories and avocations. I work in Florida and a large number of the applicants I see are scuba divers. Because I have been an avid scuba diver for the past 17 years, I pay particular interest to these applications. And, since some recent attention has been cast on health and disability insurance claims as they apply to scuba diving accidents, I felt that an overview of the insurance industry's position on diving would be valuable.

The history of scuba diving as a sport has been characterized at every step of its development by careful training, certification and equipment improvements. This careful and deliberate development has made scuba diving one of the safest participatory sports in the world today. As with any other endeavor, however, there are those whose disregard for the established safety programs has brought media attention and sensationalized stories to the public eye, making the sport seem more dangerous than statistics show.

As an example, I once received an application for \$250,000 of life insurance (a modest sum in today's insurance world) from a 23 year old. He had just completed a basic certification course and our application required that he project the number and depth of dives contemplated during the next year. This person had anticipated he would make "greater than ten dives at a depth of greater than 100 feet." As a fellow sport diver, I felt that such projections were a bit more ambitious than what was appropriate for someone at his level of experience, and I could not, in all good sense, offer to provide him with his desired coverage.

In order to make some sense of the insurance picture, we should take a look at the information companies rely upon in

order to make their decisions about the insurability of scuba divers. Most companies have an addendum form known as a scuba diving questionnaire, which, generally, asks for the following information:

- 1) Are you certified as a scuba diver by a nationally recognized organization?
- 2) Which one?
- 3) When were you certified?
- 4) What kind of diving do you do, i.e., sport, cave, ice, rescue, salvage, etc.
- 5) Provide responses to the following concerning your diving:

NUMBER OF DIVES

Last 12 Months Next 12 months

0-40'	_____	_____
40-60'	_____	_____
60-100'	_____	_____
100-150'	_____	_____
over 150'	_____	_____

6) Do you belong to a dive club?
Name _____

7) Where do you do your diving (general geographic location)?

8) Do you dive alone?

9) Do you dive professionally?

These questions will give a good overall picture of the diver and his or her approach to scuba diving. A sensible sport diver, well trained and staying at reasonable depths (generally less than 60 feet) should have no problems getting insurance. It is the diver who presents what the insurance industry considers an "increased risk" who may have difficulty obtaining the coverage he or she desires.

Unless someone presents an inordinately inappropriate picture (as in the example given), virtually any company should be willing to make some offer of insurance. If it is felt that the individual represents an increased risk (according to the insurance company's own standards) they may decide to make modifications in the premium structure to offset that increased risk. Such modifications to life insurance policies generally take the form of additional "flat-extra" charges. Such charges, generally in the range of \$2.50 to \$5.00 per \$1,000 of coverage, are added to the standard premium for a non-rated policy. When applied to the average \$100,000 life insurance policy, the rates can skyrocket from \$100 per year to more than \$600 per year—no small price to pay for the pleasure of diving.

Modifications to health and disability income policies are also made if the underwriter perceives there is more than the average amount of risk attached to a particular individual's scuba diving habits. Such modifications take the form of "riders" or addendums and generally state that claims will not be paid for diving related accidents or injury. In effect, the underwriter is telling you, "We'll insure you for everything but diving accidents." Extra premiums may be charged (as in life insurance contracts) if the company agrees to insure you for diving accidents as well.



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If you are serious about looking into sport diving as a career, either part or full time, keep in mind — **It will make a difference where you go for your education.** Here are some reasons why others have found our career institute to be the best.

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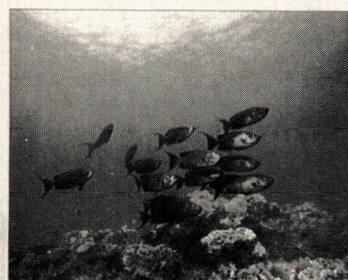
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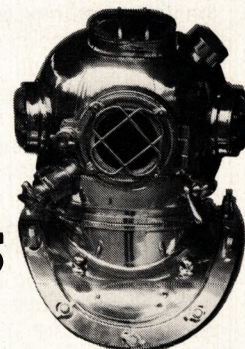
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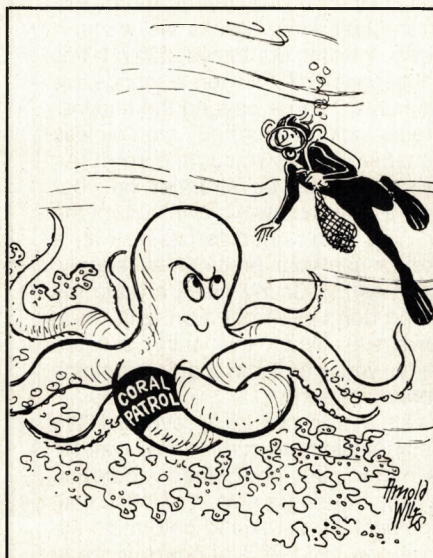
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SURF ENTRIES/EXITS

(Continued from Page 27)

to abort a dive does not make you a coward. To the contrary, it shows wisdom and an understanding of your own abilities in relation to the forces of nature.)

With no other qualifications, save many successful surf entries in my logbook, I will now explain my foolproof surf entry and exit technique. My buddies and I incorporate this method on every dive and we consistently enter and exit the surf on our feet with all our gear intact.

Now, I know we were all taught the proper way to enter the surf. That is, by walking backward into it, fins on feet, regulator in hand, BC empty. Being the good student that I am, I used that method for awhile and then abandoned it. From my years as a body surfer I knew the worst position to be in to take a wave full force was standing up with your back to it. (And, most divers don't stand erect while entering the water, they lean forward.) Add a full tank of air, restricted peripheral vision and a speargun or camera in one hand and—let's face it—you're a dump waiting to happen. Not only are you extremely top heavy, but you are fighting nature. You are a barrier to that wave and are putting your weight against tons of water. If a wave hits you in that position you can go nowhere but with it.

It is important to avoid a confrontation with the surf. That's why determining the window duration between sets is so important. You don't need a stopwatch, just get a feel for the length of time. Sit on the beach a moment and watch the waves. I usually put my gear on while on the beach. That gives me time to study the sets and determine the entry window.

With our gear on, secured and ready, my buddy and I walk down to the water, wade out knee deep and wait for the set to end. Our BCs are three-fourths full. When the last wave breaks we wade in hip deep, roll onto our backs, don our fins and flutter kick. Within ten seconds we are usually 20 yards beyond the surfline.

A flutter kick on your back creates less drag than a face down surface swim. Also, your kick will be stronger on your back and your face will be well out of the water. You won't need to hassle with a snorkel or use your precious air supply. Many times I wear my mask around my neck and don't even put it on until I'm at the dive site. When this entry is timed properly, you won't have any problems with breaking surf.

To exit, the procedure is reversed. We float just outside the surfline and wait for the window. (Set and window duration can change during a dive. It helps to wait a bit outside the surfline to determine the new window time, if it appears to have

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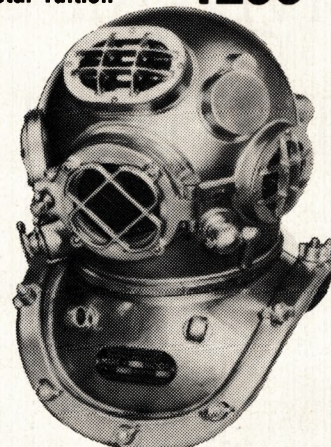
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changed.) We kick in on our backs to waist deep water, remove our fins and walk onto shore—simple.

The key to success here is window time—a period when there are no waves. It doesn't mean, however, that there won't be any surge. Surge is one reason I prefer an on-the-back kick. I've seen divers spend an entire entry window in one place, on their stomachs, snorkels or regulators in place, trying to work against the surge. The window ends, a set begins and wham! They are so worn out, it's almost a relief to be deposited on shore by a wave. If they had been on their backs, the same energy would have propelled them well beyond the surfline.

Because the best of plans sometimes fail, I will list a few things to keep in mind when you are faced with unavoidable intimate contact with a wave:

As previously mentioned, the worst thing to show an oncoming wave is your backside. The best stance for getting through a wave is to stand sideways, with your legs apart for support. This works well with waist-high waves and is the only way if you're able to stand on your feet as a wave approaches. If the water is too deep to stand, or the waves are chest high, then a sidestroke through the wave or a swim under it is the best way to survive its passing energy. If you find yourself in the surfline in water too deep to stand in, keep your BC deflated as you swim under each passing wave. As soon as the set ends, roll onto your back and flutter kick, filling your BC as you go.

The question of when and when not to fill or deflate a BC has a lot to do with the water conditions. A full BC in heavy surf is a danger. But so is an unfit diver in any surf. Know the area and your own abilities before attempting a beach dive.

With the proper entry and exit technique and the proper "energy avoidance procedure" you shouldn't have to worry about getting hit by a wave at all. But, in case you do, there is a way to survive. When you know a tangle is inevitable, take a big breath, hold your mask in place with one hand, hug any peripheral gear to your body and relax. Don't fight the wave. You can't anyway, it's stronger than you are. The wave will break and go away. You'll probably be carried back to where you started and you may be embarrassed, but you'll be OK.

Caution! A rocky shoreline and an uncovered speartip are extra hazards, so use common sense. When you enter the surf, always be prepared for a direct hit. Never take anything into the water that could hurt you or another person in a tumble. If you're taking a spear into the water, remove the tip and keep some distance between you and your buddy.

A major part of respecting nature is to never underestimate its power or incredible ability to change without warning. A strong, confident diver possessing this respect is sure to have a long and safe sport diving career. 

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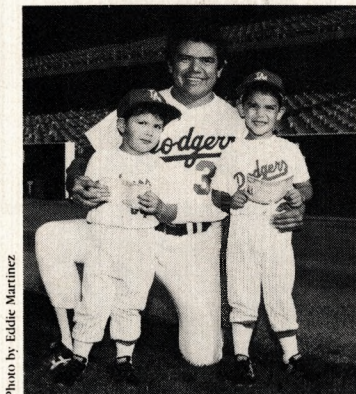
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"Revolutionary" is the word being applied to NAUI's all new *Openwater I Scuba Diver Instructor Guide*. It is being hailed as the most up-to-date, flexible and unique instructional guide ever created for scuba instruction. The guide and the *NAUI Standards and Procedures Manual*, which will be available soon, are the successors to the *Pro Manual*.

As an instructional tool for underwater educators, the guide contains academic lesson guides for every topic in the NAUI Openwater I course; confined water lesson guides for every skill in that course (with photos of critical skills) and visual aid masters keyed to lesson guides.

The masters have nearly 100 sheets of artwork suitable as flip charts for small classes, for making transparencies or slides or for making handouts. They are also available from NAUI Headquarters as high contrast slides.

The guide has four methods of instruction sections: general, academic, confined water and open water. A comprehensive appendix includes: sample course schedule, sample course outline (keyed to lesson guides), reading assignment master, handout masters, checklists and forms, written exam guidelines, briefing/debriefing outlines and more.

The *Openwater I Instructor Guide* is available from NAUI, P.O. Box 14650, Montclair, CA 91763-1150.

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Captain Wayne and first mate Karen Brockfeld of the M/V *Beaner*, at Lake Norfolk, Arkansas, now have a videotape showing the best of Ozark Lake diving. This unique video shows highlights of many of the favorite dive sites visited by the *Beaner*: The Bridge, The Dynamite Shack, Old Home Sites and various wrecks of all types.

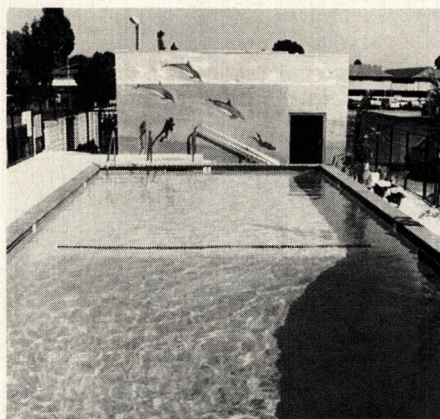
The tape can be ordered by contacting M/V *Beaner* Charters, c/o Wayne and Karen Brockfeld, 1979 Lakeaire, St. Louis, MO 63138; (314) 355-0409. Proceeds from the sales will go to DAN (Divers Alert Network). The tape will sell for \$25 postage paid. Visa and MasterCard are accepted.

SPORT CHALET POOL

Sport Chalet of Huntington Beach, California, recently took the plunge with a new totally unique pool facility for scuba diving classes. Sport Chalet spent \$150,000 on a 40 x 16 foot custom pool with a four foot shallow end and an abrupt drop to a 12 foot deep end. The truly unique feature of the pool is that it is built four feet out of the ground so that the deep end of the pool has three large

viewing windows. This is a real attraction for customers because they can observe a dive class in progress. This has created a lot of interest as well as reducing people's fears of a diving class being too rigorous physically.

Dive department manager Joe Liburdi and his staff of certified instructors will be using this facility to make it easy for cus-



tomers to fit a scuba class into any busy schedule. Evening, morning, midday and weekend classes will be available year-round. This innovative pool design will be the prototype for future Sport Chalet pools. The next pool complex is under construction at the new store in Point Loma, San Diego.

Sport Chalet's founder, Norbert Olberz, opened his first scuba department in 1959. Over the years, Sport Chalet's Dive Operation has grown along with recreational diving. With locations in San Diego, Orange and Los Angeles Counties and with the addition of new locations on Midway Drive in San Diego and on Lyons Avenue in Valencia, Sport Chalet has grown into the largest full service dive operation in the 11 western states. Offering all major brands of professional dive gear, a comprehensive continuing education program, local dive boat trips to the Channel Islands and exotic dive travel around the world, Sport Chalet offers Southern California divers an extensive schedule of activities and services. 🐠

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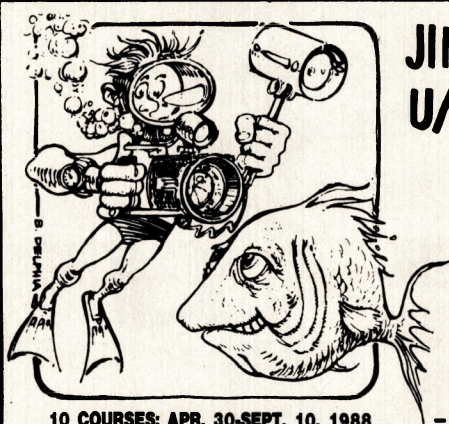


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FRINK COLORAMA

Recent visitors to Grand Central Station in New York City were treated to an underwater view of French Reef in the Key Largo National Marine Sanctuary, much larger than life, courtesy of Eastman Kodak. During September, the Kodak Colorama display in the main concourse featured an underwater photograph by Stephen Frink.



The Kodak Colorama is the world's largest color transparency, measuring 18 x 60 feet. A fixture in Grand Central Station for more than 37 years, the Colorama showcases both the abilities of the photographer and the qualities of Kodak film. Frink's underwater photo is number 543 of the Colorama series. This enlargement was made from a single frame of Kodachrome 64 film shot by Frink using a wide angle underwater strobe and a Nikonos camera with 15mm lens. It is estimated the display was viewed by 625,000 people each weekday and probably more than 14 million people during the Colorama's one month run.

Stephen Frink specializes in underwater and tropical images, both stock and assignment, and may be contacted at Stephen Frink Photographic, Inc., P.O. Box 2720, Key Largo, Florida 33037; (800) 451-3737.

PADI EUROPEAN OFFICE

As of January 1, PADI European Services in Hettlingen, Switzerland, has begun processing all certifications and handling all orders for Austria, Belgium, France, Italy, Luxemburg, Monaco, Netherlands, Portugal, Spain, Switzerland, West Germany and Yugoslavia. Previously, PADI members in these countries could place orders and send certifications to either PADI Headquarters or PADI European Services. PADI members in the Middle East and the rest of Europe will have these services handled exclusively by PADI Headquarters in Santa Ana, California. PADI divemaster, assistant instructor and instructor members in all of Europe and the Middle East will continue to maintain membership (including renewals and membership upgrades) through PADI Headquarters in California.

To help meet its new responsibilities, PADI European Services has increased

its staff and added a telephone line and fax line for better communication and service. PADI European services has also expanded its translation program to speed production of texts and materials in area languages.

For more information contact PADI Headquarters, 1243 East Warner Avenue, P.O. Box 15550, Santa Ana, California 92705; (714) 540-7234. 

MARINA DEL MAR UPDATES

Marina del Mar in Key Largo is adding another 24 units, scheduled for completion in May. They include eight, one bedroom suites designed to accommodate up to four divers. These include a kitchenette and whirlpool tub in the bathroom. The new units will be directly adjacent to the Ocean Divers dive center, increasing the convenience factor for divers staying at the resort on packages.

Additionally, an outdoor bar and covered patio overlooking the marina are being added to Coconuts, the resort's restaurant and nightclub.

For additional information telephone Marina del Mar at (800) 451-3483 or (800) 253-3483 (FL). Marina del Mar has installed a Canadian toll free line. The number is (800) 638-3483. 

PADI COLLEGE PHOTO COURSE

The underwater photography instructor course taught at PADI International College has been reviewed and approved by Nikon, Inc. During this comprehensive five day course, students learn about all aspects of underwater photography, including handling and maintenance of equipment, basic photographic principles, strobe and available light techniques, macro and wide angle photography, underwater video and more. They get hands-on experience in confined and open water, including an overnight boat trip to Santa Catalina Island off the California coast. During the boat trip, students photograph the marine life of California's famous kelp forests on both daytime and nighttime dives.

All photographic equipment, including underwater cameras and strobes, film and processing, is provided. The college features six new Nikonos systems, including Nikonos V camera bodies, SB-103 speedlights, Nikkor lenses and Nikonos close-up kits. Nikonos extension tubes and viewfinders are also provided.

The college's underwater photography instructor course qualifies for two semester units of college credit through the American Council on Education. For more information on this or any of the courses offered at PADI International College, contact the dean's office at (800) 235-3434 (in the U.S.); (800) 223-8697 (in California) or (714) 540-7234 (outside the U.S.). 

WHY THE B.V.I.?

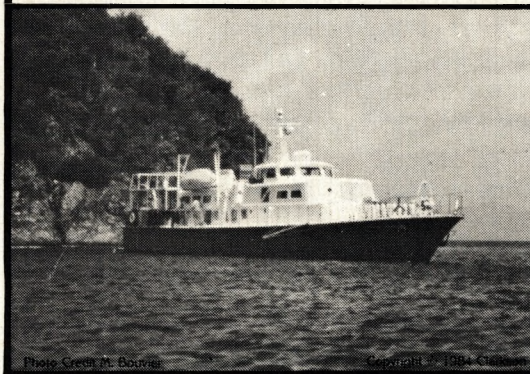
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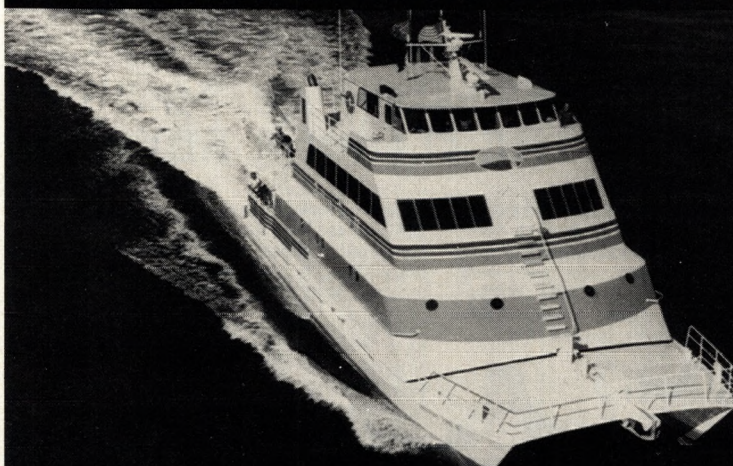
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VIDEO COURSE

(Continued from Page 33)

ers with buildup shots to create interest, suspense and anticipation.

In the lionfish example, notice how most of the shots were used as introduction and buildup to the few shots of the lionfish itself. Add music and narration and you have an interesting story—not just a few scenes of a non-moving fish. If you can edit, you can take topside and some U/W buildup shots anytime. Just have your divers dress the same for continuity.

GLOSSARY

Cut-in shot: A brief CU that cuts into the main action. For example, if a MS shows a diver looking at a book, the cut-in CU can show the diver's finger pointing at an illustration.

Cut-away shot: A brief CU that cuts away from the main action to a related action. For example, if a MS shows a diver looking at a book, the cut-away CU can show the diver's face. A cut-away subject should be established as part of the main action before the cut-away shot is made.

CU: A close-up shot that pinpoints the main action. LS and MS shots usually lead to CU shots.

Establishing shot: A LS or MS that introduces the viewer to a scene or action.

LS: A long distance shot (usually wide angle) showing the overall view of the scene. These are often used for establishing and resolving shots.

MS: A medium distance shot. It often provides the transition between the LS that established the scene and the CU that pinpoints the action.

Overlap: To reshoot the same action—but from a different angle—that occurred at the end of the previous shot.

Resolving Shot: Shows or implies the end of a sequence of shots and prepares the viewer for a new scene.

Scene: An overall view of a subject or subject area.

Sequence: A series of related shots in a logical order.

Shot: The time from when you turn the camera on until you turn it off.

Shoot: (verb) The act of taking a shot; (noun) shooting session when several shots are made.

UNCONTROLLED ACTION

Shooting uncontrolled action is difficult, especially if you are editing in-camera. You must anticipate the action and get in position so you're ready when it happens. But, the most important task is timing—knowing when to turn the camera on and off! You may not be able to use the LS, MS, CU and LS pattern or cut-ins or cut-aways. Simply pointing the camera at the action and holding it as steady as possible may be your only option.

If the uncontrolled action will be con-

fined to a relatively small space and will last for several minutes, you can use a variety of camera distances and angles to add interest. Suppose, for example, you were shooting a dive guide handfeeding large stingrays at Grand Cayman's Stingray City in North Sound. The divemaster has some degree of control over the rays—they approach him for food. But you, the videographer, are probably new to the situation. You don't know from what angle the rays will approach, how many rays will appear, how fast they will move or how long they will stay in place.

Your first impulse will be to pan with the rays so you can follow the action, but this is the wrong technique. Start with a LS of the divemaster. Hold the camera steady and wait until the rays approach him. After shooting several scenes from different angles, move in for some MS shots. If you haven't lost your nerve, try a few CU shots of the rays taking the bait. And, if the rays approach you, take a few cut-away CU shots of their mouths. Keep in mind, however, that you are dealing with wild creatures and there is the possibility of an accident.

Shooting uncontrolled action is easier if you can edit later. Leave the camera running when you change distance and angle or pan to cut-ins or cut-aways. You can select the best scenes later and edit them into a logical order. Don't try to use everything you shot—use only the best.

If two videographers work as a team, they will have a greater number and variety of shots for editing. For example, suppose a group of divers is approaching a cave, tunnel or the open hatch of a wreck. You wish to shoot an overlap of their entry, but you can't control their movements. Therefore, one videographer shoots the divers from the outside as they swim into the opening, while the other shoots them from inside as they enter. To shoot such an overlap, you must anticipate the subjects' movements and you and the other videographer must be in position and ready to shoot. The end result will be two views of the same action that can be edited later into a smooth overlap.

CONCLUSIONS

A good video story requires continuity. Continuity is the order or arrangement of video scenes—both action and static—in a logical, smooth moving video story. For some beginning U/W videographers, maintaining continuity is difficult because they can't control conditions or subjects, and tend to shoot impulsively.

If you don't have editing equipment, you must edit in-camera: You must shoot each scene in its correct order if you wish to maintain continuity. And, if you can't control conditions, editing in-camera requires considerable thought. To know when to turn the camera on and off you

must anticipate the action; if several actions are occurring at once, you must learn to identify and commit to the strongest action.

Maintaining continuity is easier if you have editing capability. You can rearrange the order of scenes and can choose only the most interesting ones for your video movie. 

WRECK VALLEY T-SHIRTS

Aqua Explorers, Inc., a New York based company that has published two books on Long Island diving—*Wreck Valley* and *Shore Diver*, both written by Daniel T. Berg—has now produced a special limited edition Wreck Valley T-shirt. These shirts are 50 percent cotton/50 percent polyester. They have a porthole silk screened on the front with a diver holding a huge lobster in the middle. Above the porthole are the words "Wreck Valley" and below are the words "Dive Long Island." Shirts are available from Aqua Explorers, Inc., in light blue, beige, white and orange in small, medium, large, extra large and extra extra large.

For further information on Long Island shipwrecks please refer to *Wreck Valley: A Record of Shipwrecks off Long Island's South Shore*. *Shore Diver, A Diver's Guide to Long Island Beach Sites* is also available. For information contact: Aqua Explorers, Inc., 22 Maiden Lane, Lynbrook, New York 11563. 

Green Things

New System 246 for 35mm UWN w/wide lens adapter (28mm), 1 f-stop ext. tube w/framer (1:2), & 1:4 add-on lens w/framer 249.00

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Helix Extension Tube System

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Wide angle adapter (28mm) for 35mm UWN and green tube (focus 11" to infinity) 135.00
Close-up wide angle adapter w/framer (1:4) f/35mm UWN and green tube 82.50

Helix Land Use Framers

Land use framer set of 3 (1:1, 1:2, and 1:3) for 35mm UWN and Helix extension tubes 59.00
Surface use framer (1:1) for 35mm UWN and Helix blue tube 25.00
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Helix Lighting

HL-4000U/W Halogen movie/video light, 4.4 AH/12V, w/charger (req. optional lamp) (50W/96 min., 100W/48 min., 175W/27 min.) 695.00
HL-7000U/W Halogen movie/video light,

7.7 AH/12V, w/charger (req. optional lamp) (50W/145 min., 100W/75 min., 175W/40 min.) 799.00

Morris Photo

K-133 Underwater flashlight w/spare halogen lamp 34.95
K-132 Underwater flashlight w/krypton lamp 29.95
Aqua F-III TTL U/W flash w/warm, tray, and TTL cord 269.50

Helix Special Nikonos Packages

Package 1C: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN & Marine Eye (28mm adapter) 489.00*
Package 1D: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN, Marine Eye (28mm adapter) & Close Eye V w/framer (1:5) 539.00*
Package 2A: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN, Aqua F-III TTL (w/warm, tray & sync cord), dive light & equipment case (18x13x8") w/foam 748.00*
Package 3A: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN, Speedlight SB-103 (w/warm, tray, sync cord, diffuser, case & spare o-rings) & equipment case (18x13x8") w/foam 809.00*
Marine Eye (28mm) adapter, Close Eye V w/framer (1:5) & equipment case (18x13x8") w/foam 909.00*
Package 3B: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN, Speedlight SB-103 (w/warm, tray, sync cord, diffuser, case & spare o-rings), Helix basic extension tube set & equipment case (18x13x8") w/foam 905.00*

Package 4A: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN, Aquaflash 28 TTL (w/warm, tray, TTL sync cord, remote sensor w/slave, diffuser (15mm) & spare o-rings) dive light, light mount & equipment case (18x13x8") w/foam 905.00**

Package 4C: Nikonos V camera (w/battery & spare o-rings), 35mm f2.5 UWN, Aquaflash 28 TTL (w/warm, tray, TTL sync cord, remote sensor w/slave, diffuser (15mm) & spare o-rings) Marine Eye (28mm) adapter, Close Eye V w/framer (1:5), dive light, light mount & equipment case (18x13x8") w/foam 1005.00**

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NAUI COLLEGE UPDATES

With some of the largest classes in the history of NAUI College coming to school this past summer, a record number of new administrative and teaching staffers have been hired. "We are committed to low ratios of students to staff and anticipate that this trend will continue," noted college president Jim Hicks. Among the most recent additions are Tricia Henson in the administrative offices and Richard Wasserman and Bill Baker on the instructional staff.

Other changes include the recently added program for obtaining loans for up to \$25,000. This has been well received by prospective students. Terms are attractive with up to six years to repay on no collateral and low interest rates.

The college recently created a board of business people and professional educators to advise the school on operational and curriculum matters. Board members are currently receiving monthly updates on the school's progress and will be periodically meeting to discuss the college's future. "We have pledged that the college will continue to grow in services to the industry and the board will be frequently utilized to assist that growth," commented Hicks.

A hospitality suite and seminar presentations will highlight NAUI College's participation in the upcoming DEMA show in New Orleans.

For more information contact NAUI College, 27402 Camino Capistrano, Suite 103, Laguna Niguel, California 92677; (714) 582-0186; (800) 423-7095; or (800) 227-6663 (CA).

ROSENBERG/ SUBMERSIBLE SYSTEMS

Nathan Owen Rosenberg has been named chairman of the board of Huntington Beach-based Submersible Systems, Inc., manufacturer of Spare Air. In his position, Rosenberg's primary focus will be the development of business and sales strategies, as well as the overall coordination of marketing programs.

The company, which recently fulfilled a \$1 million contract with the U.S. Navy and Marine Corps, has designed a compact back-up scuba system, which weighs less than two pounds, to give users approximately two minutes or 30 breaths of emergency air. The breathing apparatus is easily attached to skin divers' gear—and, in the case of Navy and Marine Corps helicopter pilots, to their flight gear.

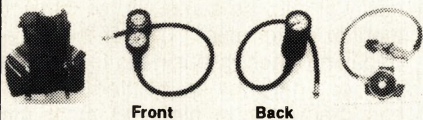
A native of Plymouth Meeting, Pennsylvania, Rosenberg is managing partner of the business development firm of Rosenberg Solomon of Newport Beach, California and a director of Irvine-based Griswold Controls.

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*Parkway Three Gauge Console

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Super Special 8



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Tabata TUSA Regulator

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Tabata TUSA SCA50DX Console

TUSA's latest design console has 5000 psi pressure gauge, 160 feet maximum depth, side view compass, thermometer and aluminum knife. Comes in black, blue, navy, yellow, pink and lavender. List \$332.00. If purchased individually from Divers Supply \$198.95

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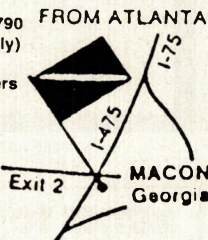
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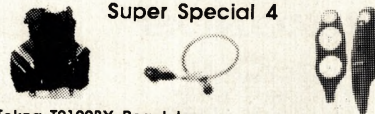
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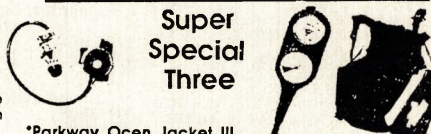
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SEA ELITE

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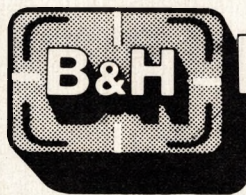
*Parkway Console

Two gauge console with 170 ft. depth gauge with maximum depth indicator needle, 5000 PSI pressure gauge. List price \$130.00. If purchased individually from Divers Supply \$69.95

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DIVERS UNLIMITED COLLEGE

(Continued from Page 42)

on a professional basis, so I came to the course here. To be honest, I haven't found any that surpass it . . . And, now I'm back looking for instructors . . . I'm happy with the method I learned and I felt that instructors from here would most easily fit into the same sort of instruction that I'm performing." One of the benefits of having been in business for a decade and one-half, Inman pointed out, is he has graduates in place at most major dive destinations in the hemisphere.

I decided to ask some of the candidates what they thought of the training. "It's wonderful," said Linda Linde. "It's a lot of work, but you sure know how to teach when you're done . . . I would have never imagined it would be so complete . . . You come into the class thinking that all you need to learn is how to scuba dive good, but you find out that you need to learn the skill of teaching."

I tried another candidate. "I think it's been great," said Rice Jackson. "Everybody conducts himself in a very professional manner." "I looked at going to California," added another student, "but the price was lower here and I didn't want to dive in cold water."

The Divers Unlimited instructor course is set up on what they call a "triad" system. There are three sections to complete to go from advanced open water diver to PADI instructor. The entire course takes about a month and follows the PADI system. The first four days are spent earning a rescue diver certification. It takes nine more to earn divemaster, then a week and one-half to gain the instructor rating. The instructor course is broken down into three days of review of academics (the "IDC prep"), the instructor development course (IDC), which is a week of learning teaching methods, and two days for the instructor evaluation (IE). By leaving the evaluation until the end, says Inman, "we have taken the pressure off the candidates so they've got a more relaxed atmosphere to learn in. People are more able to learn in depth if they're not faced with a pass-fail on a day-to-day basis."

Candidates can come in at any phase of the process, even attending only the two day IE if they have achieved the prerequisites elsewhere. Conversely, divers who have not yet achieved advanced diver status can get that training at Divers Unlimited before the triad starts. In fact, Divers Unlimited has the capability to take a diver at any level and give him/her the training and experience he/she needs to become an instructor candidate. Having trained more divers and more instructors than anyone else on this side of the country, Inman feels that he has found a method that works.

Nine triad programs will be offered in 1988. At the end of each course, Divers Unlimited offers a medic first aid instructor course (two days). They offer ten other specialty ratings plus the IDC staff instructor and the master scuba diver trainer ratings.

In addition to its instructor training program, Divers Unlimited has a complete diver training program, a retail facility with the largest inventory of dive equipment in the country, a dive travel service, and local dive trips and dive packages. When PADI issued a "Number 1 Training Facility" award, Divers Unlimited won it three years in a row, until the award was discontinued for lack of competition. For more information contact Divers Unlimited, 6023 Hollywood Blvd., Hollywood, FL 33024; (305) 981-0156.

HIGH VISIBILITY COLORS

(Continued from Page 14)

colored gear—if you lose it, it will be easier to find because it won't blend in with the bottom.

Today's brightly colored gear isn't any harder to take care of than its basic black ancestors. All dive equipment should be rinsed thoroughly with freshwater at the end of your diving day and allowed to dry in the shade. It's a good idea to keep all dive equipment out of the sun because it shortens the life of both rubber and plastic. Although many of today's BCs are constructed of a single bladder, if yours has an inner bladder it should be rinsed as carefully as the outside to prevent the formation of salt crystals that could cause punctures. Keep the forms that come with your colorful fins and insert them in the foot pockets when the fins are not in use: This prevents the pockets from becoming deformed. Any items made of clear silicone (snorkels, masks, regulator mouthpieces) should be kept separate from black neoprene. This is because silicone turns brown when it comes in contact with neoprene. Although this won't affect the life or function of the gear, it will look ugly. Both wetsuits and nylon/Lycra bodysuits will look better if you wash them now and then. Both can go into the washing machine with some of your regular detergent. Although bodysuits can go into the dryer, hang your neoprene wetsuits up to dry!

Colorful scuba gear is not just a fad, it's here to stay. All major dive equipment companies offer it. And, it's good to know that not only does colorful equipment make us look good both in and out of the water, it also makes diving safer.

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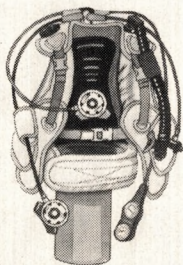
- 330 ft. waterproof
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- Temp/daily/hourly alarms
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- 8 time zones, night light
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Package One

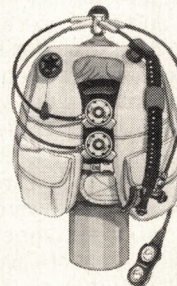
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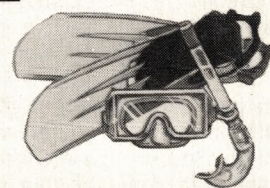


Package Three



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(Continued from Page 12)

pieces of coral protruding into the foreground of your picture. The same is true with bits of algae or strands of eel grass.

Clear Background—Whenever possible, try to position your wire framer and camera angle so you have a clear background behind your subject. This will help achieve contrast and give more "snap" to your photographs.

It should be remembered that many of the creatures you intend to photograph have a natural camouflage. Part of their natural defense mechanism is to blend in with their surroundings. You are attempting to achieve just the opposite.

Complementary Colors—In macro composition, a lot can be done with colors. This is because of the bright lighting conditions and benefits of full color saturation. For example, you can make your subject stand out from the background by coaxing the creature onto a contrasting color background. A white and red banded coral shrimp looks beautiful when framed against a background of bright green algae. Dark colored creatures will look good against light colored backgrounds and vice versa. Experimentation with various color combinations will help you understand which color matches work best.

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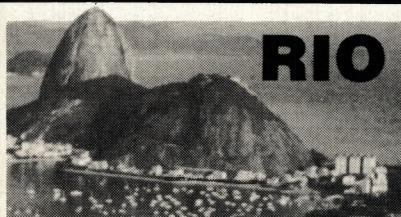
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Of Stuart, 1843 S.E. Federal Hwy., FL 33494 305/283-5588
Of W. Palm Bch., 4348 Forest Hill Blvd., FL 33406 305/969-6688

FANTASEA SCUBA HEADQUARTERS 904/837-0732
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Boca Raton, FL (2 locations) 305/368-0555 & 395-4407
Pompano Bch., FL 305/943-3483. Riviera Bch., FL 305/845-2333
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A KEY LARGO WATERFRONT APARTMENT Completely furnished, limited dockage, sleeps 4. Outside bordering Pennekamp Park. Rent by weekend, week, or month.	305/451-2840 305/920-4428 305/893-3898	
A KEY WEST CANAL HOME RENTAL AND/OR DIVE/FISHIN' PKG. P.O. Box 473, Key West, FL 33041 3/2 w/full kitchen, micro, W&D, color cable TV, stereo, gas grill. Covered fish clean table w/light & water. MUCH MORE!	305/296-3737	
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BIG PINE SEA CENTER DIVE SHOP P.O. Box 515, MM 29.5 US#1, Big Pine Key, FL 33043 Dive Looe Key, #1 Reef in FL. Keys, full service shop. Dive/lodging packages, custom boats.	305/872-2319	
BUDDY'S DIVE SHOP P.O. Box 409, Islamorada, FL 33036 MM 79.5 Dv. aboard our 40' 'Scuba Safari' & 34' 'Free 'n Clear'. Full/1/2 day trips to Alligator Reef, Eagle Wreck & Coral Gardens. Pkgs. avail.	Natl. 800/223-4707; 305/664-4707	
CAPTAIN CHAMBERS CHARTERS P.O. Box 2258, Key Largo, FL 33037 MM 100 30' Cust. boat w/sundeck, 6 max. 1 Trip daily, family rates, brunch served, cust. dv. pkgs. avail. Rec. by Undercurrent '82.	305/451-1805	Dive Pennekamp
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CAPT. SLATE'S ATLANTIS DIVE CENTER 51 Garden Cove Dr., Key Largo, FL 33037 MM 106.5 Experience our Pennekamp, U/W pet feeding, U/W weddings, Acc./grp./multidive packages. NAUI, YMCA, PADI & CMAS instr.	800/331-DIVE 305/451-1325	
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FLORIDA KEYS DIVE CENTER P.O. Box 391, Tavernier, FL 33070 5-STAR facil. & dive chtrs. 4 day instr. & specialties. Reefs, wrecks spearfish, Pennekamp & more. 6 pass. dive boats avail. 2 40' boats.	305/852-4599 800/433-8946	
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HALL'S DIVING CENTER & RESORT 1994 Overseas Hwy., Marathon, FL Keys 33050 (in FL) 305/743-5929 Beautiful reef & wreck diving trips—Largest store & instruction. facility in the Keys—motel/condo diving packages arranged.	800/331-4255 305/743-5929	
HOLIDAY ISLE DIVE CENTER P.O. Box 482, Islamorada, FL 33036 MM 84.5 All new "Wreck Diving" All new 22 passenger dive boat—Open 7 days.	305/664-4145 FL 800/432-2875 US 800/327-7070	
KELLY'S MOTEL and MARINA P.O. Box 75, Key Largo, FL 33037 (MM 104.5) 1 mi. from John Pennekamp. In heart of dvg. dist. Dv. pkgs. avail. On the water/jacuzzi/bbq area/boat ramp/swim/fish/dock/cable/HBO.	305/451-1622	
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TRIANGLE WATERSPORTS, INC. Rt. 2, P.O. Box 617, Summerland Key, FL 33042 Cust. dv./snork. trips to Looe Key/unique Lower Key reef sites/back cntry explng. Spearfish/lobster/fish/sail. Avail. aboard 3 cust. boats.	305/745-BOAT 305/745-2628	
UNDERSEAS, INC.—DIVE LOOE KEY U.S. 1, MM 30.5, P.O. Box 319, Big Pine Key, FL 33043 Daily Reef Trips to Looe Key Marine Sanctuary. Air, Rentals, Sales, Repairs, Group Rates, PADI Lessons.	305/872-2700; 305/294-0605	

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I Learned About Diving From That Recipe For Disaster

TEXT AND PHOTOGRAPHY

BY P.D. SARACIN

Our first three days in the BVI were spent at anchor in a cove off Norman Island while storms gave new meaning to the term "cabin fever." With the first break in the weather, we loaded dive gear and ourselves into a 12 foot dinghy. We motored one-quarter mile to a cluster of sheer pinnacles rising 90 feet from the seafloor; they are known locally as the Indians.

The sea had become mirror-calm with just a slight hint of swells. Finding no beachhead, we motored to Pelican Island, some 275 yards distant. The return of the heavy cloud cover prompted us to haul the dinghy well up the gravel beach lest the storm activity resume while we were below.

After we took a compass heading on the Indians three things happened: Bill couldn't clear his left ear, Jill's borrowed second stage began freeflowing; and I noticed a current running parallel to the steep shoreline.

We clambered back up the gravelly scree, regrouped, corrected the freeflow problem, recalculated the compass heading to allow for drift in the current, and tried again.

This time, everything went smoothly. The brain and elkhorn studded coral embankment forming the base of Pelican Island dropped away to a pure white sand bottom. Some 100 yards farther, the reef surrounding the Indians appeared. Rolling ridges and clefts sheltered an endless array of marine life.

During our dive we monitored our air consumption, saving enough air for the return trip plus a five minute safety margin.

Starting the return trip we passed easily over the hills of the reef until we came near its edge. Coming up over the last ridge, a current all but stopped us. At the same time, it dawned on me just why the journey over had been so easy. The same current that had assisted our arrival, however, was going to make our return extremely difficult.

The sandy white channel, which had so delighted us on the swim over, now seemed like a no-man's land in a war zone. Worse yet, the powdery bottom presented no handholds and no obstacles to the current. Legs aching and lungs gulping worrisome volumes of air, all four of us struggled across the channel.

After awhile, my SPG showed 800 psi and I still couldn't see any end to the sandy channel. I began to worry we might miss the island altogether and signaled we should surface to see how far we had drifted down range.

Things had changed above us. The glassy surface was now sporting a nasty chop and heavy rain reduced visibility greatly. Worse



yet, the current had sent us far down range of our boat. We descended again and kicked and swam for all we were worth. Linda and Jill were to my left, Bill to my right. Bill started to outpace me as my energy waned. Soon he was out of sight. I turned a moment later and neither my wife nor Jill were to be seen. I surfaced to look for them with 200 psi showing on the gauge. To my horror, I spotted my wife's BC bobbing over a wave 75-80 yards away. I raised a gloved hand and saw a responding wave from her. There was no sign of Jill or Bill. The chop kept slapping my mask and flooding it. The island was now 25-30 yards away. I wanted to swim toward my wife. I looked for her again, but couldn't find her.

Suddenly my tank went dry. I pressed for shore on the surface. My horsecollar BC made swimming awkward and I alternated using legs and arms to rest aching muscles. The chop kept flooding both my snorkel and mask.

Then I spotted Bill. In waist-deep water, he was clinging to a small man-sized pinnacle jutting from the island's rocky wall. I was finally nearing shore. A wave decided to pit me against a large brain coral; the coral won, leaving me with a well defined imprint of its convolutions upon my anatomy. Bill managed to swing his gear over the top of the pinnacle and swim over to me. I clambered up the rock, gave Bill my gear and half-swam, half-scrambled along the island's perimeter to the boat.

How I then managed to drag the boat down to the water and clear of the rocks without swamping it can be attributed solely to luck. I motored past a forelorn-looking Bill to search for Linda and Jill. I found them on a narrow ledge at the very end of Pelican Island. By standing on their flippers they could just keep their heads above water. Every other wave swept them from their perch; they struggled back each time.

Jill, we learned later, had run out of air first and Linda had surfaced to stay with her. Jill's BC (also borrowed) failed to inflate properly, even after manual efforts, and she was forced to cling to Linda. The two of them had pulled

and kicked their way toward Pelican and were very fortunate to find the narrow ledge.

After some further difficulty, we piled a wet and coral-cut Bill into the boat and bailed our way back to our chartered sloop in Norman bight. We were exhausted by the near tragedy but happy to be alive.

We learned the following from our mistakes:

1. If you plan to use a small boat as your dive platform, be equipped with adequate gear to moor over the dive site. The Indians were sheer and presented no safe mooring; the dinghy's ground tackle was totally inadequate to accommodate the depth involved.

2. Think twice before attempting a 500-600 yard swim if you are not in shape for it and, even if you are fit, ponder the wisdom of same.

3. Do not allow external factors (i.e., limited vacation time, a spectacular dive site, concern at disappointing friends, etc.) affect your decision on aborting a dive. We had favored a temporary lull in the poor weather in lieu of the overall forecast for the area.

4. Know your equipment! Do not borrow or rent gear unless you have a chance to familiarize yourself with it under simpler conditions. Bill's rented BC had leaked badly, making his struggle to the rocks that much tougher. Jill's had not worked at all—a fact which, under the circumstances, could easily have resulted in a double drowning. Jill's freeflow had started again when we had surfaced for our bearings and rapidly depleted what air she still had. This was the one area in which Linda and I were fortunate. Had either of us suffered a BC failure, at least one of our party would almost certainly have drowned.

5. Whenever a current is present, take the time to be certain you can cope with it and allow for that extra effort and time. Also, when possible, allow for an alternate staging point should it prove physically impossible to return to your point of entry. Having a nondiver along to man the dive boat is better still.

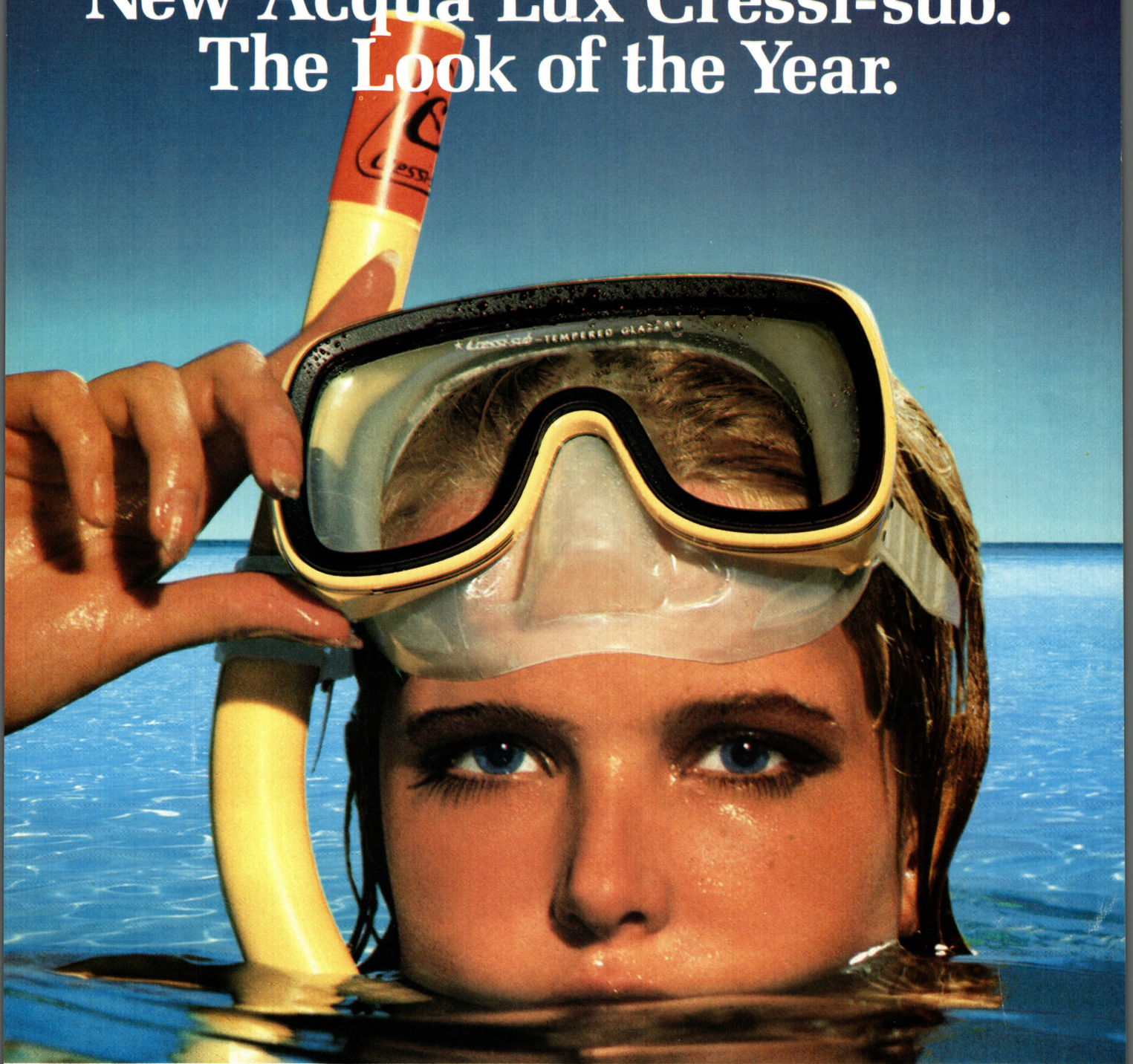
6. Do not separate. Finding one's self utterly alone in an open sea is both psychologically and physically debilitating. While we were all cognizant of this most important rule, I had missed Jill and Linda's forced surfacing and Bill had gotten too far ahead to see us. Valuable air and energy were spent turning this way and that, scanning for the others.

7. Remember your weightbelt! Exhausted as each of us was, not one of us thought to ditch his/her weightbelt! Sound idiotic? It is, but often an action must become almost second nature for it to be considered under stressful conditions. Regular practice is essential.

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